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# Infant

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# Infantry

A PROFESSIONAL JOURNAL FOR THE COMBINED ARMS TEAM

January-February 1981

Volume 71, Number 1

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## FRONT COVER

Given the interacting complexities of the modern Army, the will to win, when it combines both perseverance in the face of adversity and a determination to do it right, becomes a critical necessity.





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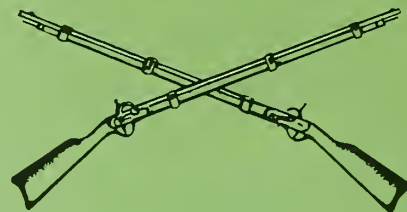
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# Commandant's NOTE



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**MAJOR GENERAL DAVID E. GRANGE J.R.**

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## **MACHINEGUN USE — A LOST ART**

During the past 15 years, the attention we infantrymen once gave to training with and employing our machineguns has shifted dramatically to training with and employing our antitank guided missile (ATGM) weapon systems. The awesome numbers and combat potential of the Threat armored vehicles dictated this shift.

Unfortunately, when we did shift our attention so dramatically from our machineguns, we also began to ignore the problems associated with the close-in infantry battle and to overlook the important role our machineguns will play in our future combined arms battles.

Let no one think otherwise: Our machineguns will have an important role to play in our future combat operations, especially if we must fight in built-up areas, mountainous areas, and forests, and no one can doubt their value when we are called on to conduct patrols and raids against enemy forces or installations. Our machineguns are important weapons — they are not just big M16s! They have a definite role in infantry combat.

Today, though, I am afraid that we have let our proficiency with our machineguns lapse, to become almost a lost art. We don't seem to realize how many machineguns our infantry divisions have or what an awesome amount of firepower those weapons offer to the commander. For example, the 3d Infantry Division (Mechanized) in Germany has more than 1,300 M60 and .50 caliber machineguns in its combat battalions, and close to 600 M60 and .50 caliber machineguns in its combat support and combat service support units. The 9th Infantry Division at Fort Lewis has roughly 525 M60 and .50 caliber machineguns in its combat battalions with another 475 plus M60 and .50 caliber machineguns in its combat support and

combat service support units. We must train all our soldiers — combat, combat support, and combat service support — to use this tremendous combat capability.

Since we can expect Threat infantry soldiers to come at us either on foot or on vehicles, we cannot afford to let this tremendous reservoir of firepower dry up from a lack of appreciation or understanding. We must regain the pride we once had in our ability to use machineguns with deadly and telling effect. We should never forget the important role the machinegun has played in past wars, and what a devastating weapon it can be when properly employed by a well trained gun crew.

In World War I, for example, the machinegun's deadly fire contributed to the domination of the defense and a corresponding loss of maneuver on the battlefield. In World War II, they were used in every theatre, in every battle. The fighting for Bastogne exemplified the effectiveness of the machinegun in the defense.

On the morning of 20 December 1944, six German tanks and self-propelled guns followed by a battalion of *Volks-grenadiers* attacked the positions of the 2d Battalion, 501st Parachute Infantry. U.S. tank destroyers engaged the leading enemy tanks, opening a gap between the tanks and the following infantry. Machineguns firing at maximum ranges on the *Volks-grenadiers* severely disorganized their attack. With the failure of the dismounted assault and the destruction of their close-in antiarmor protection, the enemy tanks discontinued the attack.

In the Korean War, the highly mobile and responsive machineguns often provided the firepower necessary to defend successfully against a numerically superior enemy. On 29 January 1951, Company F, 21st Infantry held a

hilltop that was dominated by enemy fire from a higher hill nearby. One platoon, using its sole operational machinegun to guard the saddle between the two hilltops, directed fire against the connecting saddle and successfully beat back six heavy assaults by Chinese Communist forces against its perimeter defense. Thousands of similar small unit fights were fought and won through the effective employment of the machinegun.

During the 1973 Arab-Israeli War, the infantry machineguns enhanced the tanks' effectiveness. The machinegun was important for beating back dismounted assault elements, relieving pressure on tanks under attack by close-in infantry carrying antitank weapons.

Here at Fort Benning, we are emphasizing the use of machineguns in all of our training. At the 1st Infantry Training Brigade (OSUT), for example, the new soldiers, in addition to receiving machinegun familiarization training, also learn how to be good assistant gunners. We have plans to increase their training so that all OSUT graduates will qualify as machinegunners.

In our leadership classes, too, we have revitalized our machinegun instruction, and we are now emphasizing in those classes the basics of machinegun training, maintenance, and, most of all, employment. Units in the field can expect that the junior leaders who graduate from the various courses at the Infantry School will know how to fight their machineguns.

Our units can regain their necessary expertise in this "lost art" by:

- Ensuring that machinegun teams consist of assigned, qualified gunners and proficient assistant gunners.
- Training with machineguns under a variety of climatic conditions, night and day, and under full MOPP.
- Training with all available night surveillance equipment.

- Developing expertise in machinegun maintenance by having the crew members face up to and solve immediate action crises both during daylight and at night and while engaged in tactical situations, such as patrolling. (How many machinegunners can change a barrel when blindfolded?)

- Developing the crew members' physical capabilities so that they can carry their weapons, accessories, and ammunition for considerable distances and cross-country. (How many platoon and squad leaders know how to get their weapons over small water barriers?)

- Training the machinegun crews to fire effectively and accurately at controlled rates of fire to destroy targets with a minimum expenditure of ammunition.

- Training the crew members to check the FPL for proper grazing fire by walking the FPL trace and, more important, *insisting that all junior leaders do the same.*

- Training the junior leaders to understand and appreciate the value of machinegun fires when those fires are properly integrated with other available fire as well as with mines and wire.

- Having standard drills to make sure the machinegun is placed in action quickly and effectively. (I noticed during a recent visit to Germany that German mechanized infantrymen always dismounted the machinegunners first — not a bad idea.)

- Training the machinegun crews to work closely with the ATGM teams.

- Emphasizing the habitual use of the Range Card.

It is time for us to return the machinegun to its rightful position in the minds, and hands, of our infantrymen, and we must stress its use on the modern battlefield. Our potential opponents' current tables of organization show that they certainly have not lost their respect for this basic infantry weapon. Nor should we!

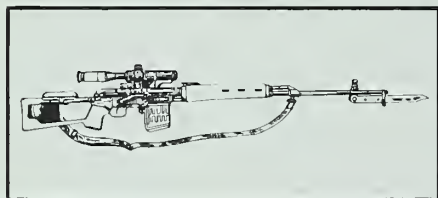


# INFANTRY NEWS



BEGINNING WITH THIS ISSUE, we will feature a new section called "Threat Tidbits." In this section we will update our readers on Threat doctrine, tactics, and equipment. Questions on the material that is presented should be addressed to the DCD Threat Branch, USAIS, ATTN: ATSH-CD-CSO-TH, Fort Benning, Georgia 31905. Here are our first tidbits:

- **Soviet Sniper Rifle (SVD).** The Soviet 7.62mm Sniper Rifle Dragunov (SVD) was developed in 1965 and entered service in 1967. It is a gas-operated, semiautomatic rifle that uses a detachable 10-round mag-



azine. It fires about 30 rounds per minute in the semiautomatic mode, has an effective range of 800 meters, and a maximum effective range of 1,300 meters with its four-power telescope. The PSO-1 optical sight has a six-degree field of view, contains an integral, passive infrared detection system, and an illuminated range finder reticle. Thus, the rifle is effective in daylight against point targets and at night against infrared emitters, such as night vision aids and weapon sights.

Only light and heavy ball-type ammunition can be fired with accuracy from this rifle. Even though it is equipped with a bayonet, a sniper rifle is not an ideal weapon for close combat purposes because it can only be fired in the semiautomatic mode. Too, its length — 1.2 meters — and its weight — 4.2 kilograms — keep it from being a very maneuverable

weapon. Currently there are 27 sniper rifles in the BMP-equipped motorized rifle regiment.

- **AGS-17.** The Soviet AGS-17 is a 30mm automatic rifle grenade launcher equipped with a ground-mounted tripod. A circular drum that



holds some 30 grenade rounds is mounted on the weapon's right side and the non-disintegrating metallic link belt exits from the left side. The weapon's barrel is quite short and protrudes from a large rectangular receiver. A small optical sight is fitted at the rear of the receiver and an elevation quadrant appears on the left rear side of the weapon. Each grenade weighs between 300 and 400 grams. It is estimated that the AGS-17, unloaded, weighs 30 to 35 kilograms. There are 18 AGS-17s in the BTR-equipped motorized rifle regiment.

- **AT-5 SPANDREL Antitank Guided Missile.** The AT-5 SPANDREL is a wire-guided, semiautomatic, command-to-line-of-sight (SACLOS) antitank guided missile system mounted on the BRDM-2

scout vehicle. Each launch tube is about 1,200mm long and 134mm in diameter. The missile itself is believed to weigh about seven kilograms.

The launch tube has a blow-out cap at the front and is flared at the rear. Five missiles are carried on a traversable mount that is located just behind the vehicle's two front cupolas. A bowed hatch in the vehicle's roof just behind the launcher is probably used to allow the mount to be folded backwards into the vehicle's hull for reloading purposes. An optical sighting and tracking periscope that can be rotated is mounted on the gunner's hatch at the right front of the vehicle's roof.



The SACLOS guidance system increases accuracy and reduces operator training requirements since the operator does not need to track the target and the missile at the same time. The operator keeps his sight trained on the target and the missile is automatically tracked by the system. Any deviation between the missile's flight path and the operator's line-of-sight is measured by an infrared tracking apparatus. The infrared source is in the missile's tail.

The SPANDREL's estimated maximum range is 4,000 meters, and its warhead can penetrate 500mm to 600mm of armor. Both the BTR- and BMP-equipped motorized rifle regiments now have nine BRDM-2s that mount either the AT-5 SPANDREL or the older AT-3 SAGGER.

## INDEX

The 1980 index to **INFANTRY** has been prepared separately and is available to anyone who requests a copy. Please address your request to: Editor, **INFANTRY Magazine**, Box 2005, Fort Benning, Georgia 31905.



THE DEPARTMENT OF THE ARMY has terminated two contracts for the development of the Infantry Manportable Antiarmor Assault Weapon (IMAAWS). The weapon had been under development by the Army Missile Command at Redstone Arsenal, and the Army had planned to field IMAAWS in the mid-1980s as a replacement for the Dragon.

The decision to cancel IMAAWS gives the Army a chance to restudy the balance between the weapon's performance characteristics (lethality, range, and the like) and physical characteristics such as size and weight to make it more suitable for the soldier.

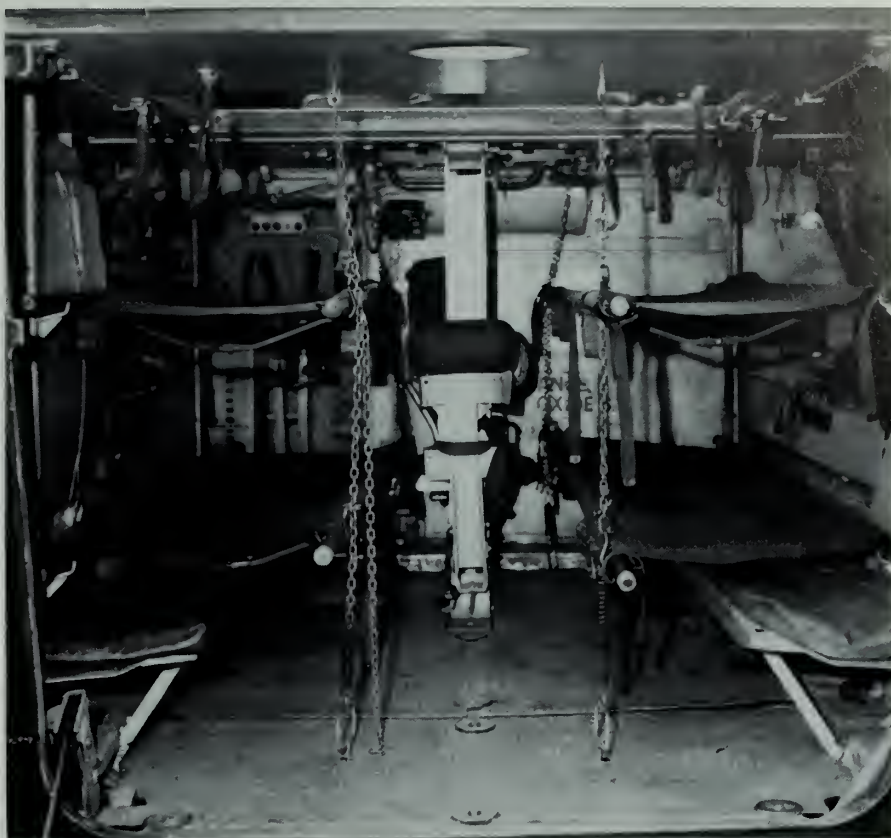
IN THE NEWS SECTION of our November-December 1980 issue, on pages 7 and 8, we carried an item about the Weaponeer training device. We said that the Weaponeer is an outdoor marksmanship trainer. That is incorrect. The Weaponeer is an *in-door* marksmanship trainer.

We regret the error, which is entirely ours.

THE INFANTRY BOARD HAS SUBMITTED the following news item:

• **Medical Evacuation Vehicle.** In January 1979, a team from the Army's Bioengineering Research and Development Laboratory (MBRDL) visited West German military units and noted that those units were using an ambulance litter rack arrangement in their M113 vehicles that seemed to work better than the chainhanger rack kit used by U.S. units. The German manufacturer loaned one unit to the U.S. for testing purposes, and the Infantry Board conducted a concept evaluation test of the unit during July 1980.

The German unit consists of four litter support racks that are mounted inside the troop compartment of a standard M113A1 armored personnel carrier. Each rack is designed to provide mechanical assistance in loading and unloading litter patients and to



Standard U.S. litter rack mounted in the M113A1 medical evacuation vehicle.

permit folding for stowage so that ambulatory patients can be carried without removing the litter racks.

The four pieces that make up the kit are a left-side and right-side upper litter rack and a left-side and right-side lower rack. Each has a slightly different configuration based on its intended position inside the vehicle and the intended location of each is obvious from its configuration. Two people using open-ended wrenches can attach the litter racks to fittings already in the vehicle so that no mounting hardware is required other than that built into the racks.

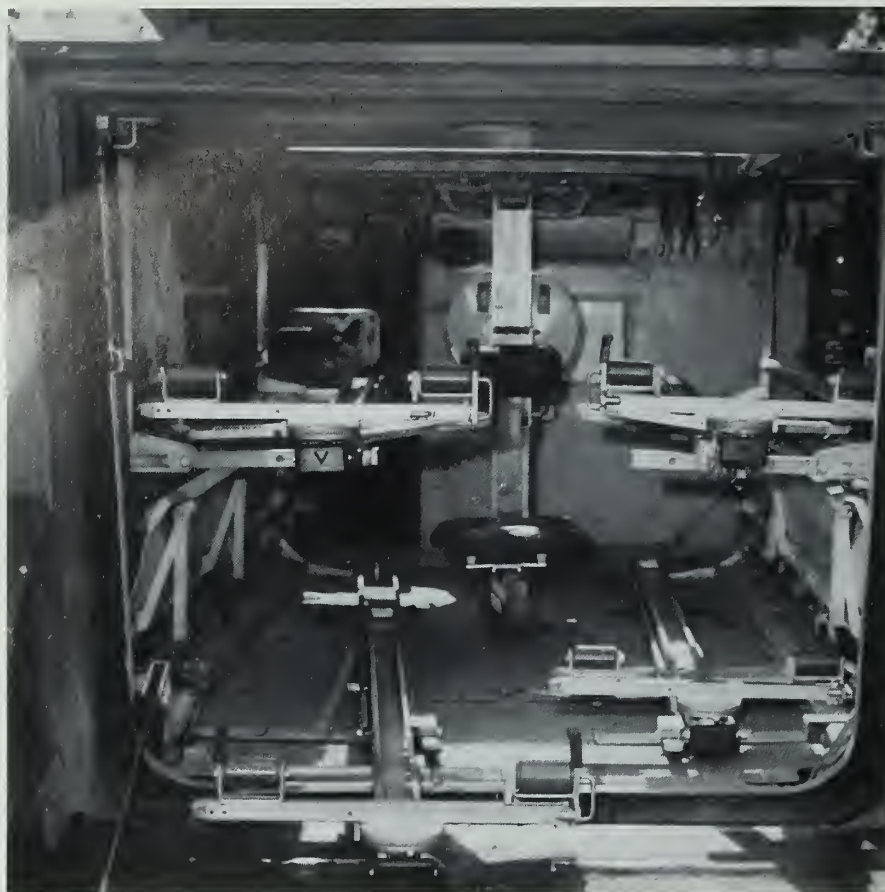
Each rack locks to hold a litter securely in place when the vehicle is in motion. The rack is pivoted at its forward end so that its aft end can swing away from the wall of the vehicle to line up with the ramp doorway. The litter can then be moved into or out of the vehicle while supported by a trolley that is built into the rack. Accordingly, the bearers do not have to physically carry the loaded litter

into or out of the crowded confines of the vehicle.

The current U.S. litter kit, which consists of four support posts and four chains that are attached to brackets and eyelets in the personnel compartment of the M113A1 medical evacuation vehicle, was used as the comparative item.

During the test period, two medical evacuation teams alternately used the test and control items. The test phases included installing the test and control items in various configurations, loading and unloading various combinations of litter patients, and administering first aid and treatment to simulated casualties. Additionally, the medical personnel performed selected procedures while wearing CB protective clothing and while selected casualties were in chemical protective bags. The exercises were conducted while the vehicle was stationary and when it was being driven over a cross-country route.

The test results will be used by the



German stabilized litter rack mounted in the M113A1 medical evacuation vehicle.

Army's Academy of Health Sciences and MBRDL to determine the potential of the stabilized litter rack for U.S. Army use.

Captain John D. Cheek, Equipment Test Division, was the test manager.

ARMY REGULATION 735-11, Property Accountability: Accounting for Lost, Damaged, and Destroyed Property, has been revised and is expected to have an effective date of 1 January 1981. The revision includes certain streamlined techniques that will reduce the amount of paperwork used by an individual who seeks relief from property responsibility. Some of the highlights of the revision that will affect company and battalion leaders and staff officers are:

- The Government Property Lost or Damaged Report (DA Form 4696) will no longer be used.

- A revised report of survey form

(DA Form 4697) will allow the appointing and approving authorities three options: to drop the property from accountability without investigation; to conduct an informal investigation under the provisions of AR 15-6; or to conduct a report of survey investigation in accordance with AR 735-11.

- The report of survey processing time will now be 75 calendar days for the Active Army, 150 days for Army National Guard units, and the end of the eighth MUTA-4 for Army Reserve units.

- The commander's statement, used for repairing damaged equip-

ment when there is no suspicion of negligence or misappropriation, will no longer have a \$500 limit. This statement can now be used for any dollar amount of damage, but must be signed by the appointing authority or his designated representative.

- Specific guidance is now given to the survey officer for use in determining depreciation allowances for all property and computing the liability of each individual, in recommendations of joint liability, when the combined base pay of all concerned is more than the loss to the government.

- The request for reconsideration has been eliminated as a reclama action. The appeal has been retained, and will be forwarded automatically to the General Courts Martial convening authority for final action, if the approving authority denies the appeal at his level.

- When two or more reports of survey are initiated for the same incident (organizational and installation property), the total liability of each individual held liable is limited to one month's base pay, unless the loss involves personal arms or equipment.

- Hand receipt holders will now be required to report to the unit commander or first sergeant any circumstances that make it impossible to secure property from loss or theft. Failure to report such circumstances could be reason to charge the hand receipt holder for any property lost, damaged, or destroyed.

Additional information concerning the new way of doing business is listed in the Commander's Handbook for Property Responsibility at Unit Level, FM 10-14-1, September 1980.

THE INFANTRY SCHOOL has just entered into a new Training Extension Course (TEC) contract with a civilian firm to develop a Job Training Program (JTP) for the 11C MOS. Lessons on the 107mm mortar and the lightweight company mortar will be developed to supplement the lessons on the 81mm mortar that are already in the field.



Seventeen lessons have been completed for the 11H MOS on the improved TOW vehicle (ITV), and these lessons will soon be available to units in the field.

THE ARMY WILL BEGIN issuing in 1982 a desert camouflage uniform to selected units that have potential missions in desert areas. The uniform was designed and developed by the Army's Natick Research and Development Command and consists of a jacket and trousers for daylight wear, a parka and trousers for wear at night, a broad-brimmed hat, and a helmet cover.

Each item bears a camouflage pattern that has been designed for the desert environment. The uniform was derived from one that was field-tested in 1967 but never issued.

THE DEPARTMENT OF ARMY has announced that it has selected one of the four candidate squad automatic weapons (SAWs) to enter the next phase of development that could lead to the purchase of 10,000 such weapons in 1982-1983. (INFANTRY, March-April 1980, page 6.)

The XM249, a weapon submitted by *Fabrique Nationale* (FN) of Belgium, was selected after a shoot-off competition with the three other weapons that were submitted for the competition. The selection of the XM249 means that a refinement of the FN system will continue for some 12 to 15 months before any final procurement decision is made.

If the FN system is finally adopted, the Army plans to produce it in this country through a competitive bidding process.

IN THE NEAR FUTURE Commander's Manuals will be called Trainer's Guides instead, and they will provide information on the recommended methods of training soldiers to perform specific tasks and on how those tasks relate to the ARTEPs.

The new manuals should be made available to commanders, trainers, and leaders at all echelons. Junior leaders, particularly, must be allowed to use them so that they can plan and conduct their training periods properly.

THE ARMY's Transportation Museum at Fort Eustis, Virginia, one of three Army museums accredited by the American Association of Museums, is trying to raise \$400,000 to finance a major expansion of its facilities. Contributions should be mailed to the U.S. Army Transportation Museum, Post Office Drawer F, Fort Eustis, Virginia 23604.

UNDER ITS NEW FULL-TIME manning project, the Army is assigning 1,070 Active Army, 1,108 Army National Guard, and 1,060 Army Reserve soldiers to full-time duty with Reserve Component units. The soldiers will serve three-year assignments and will work in maintenance, supply, personnel management, and administration.

DARCOM'S Tank-Automotive Materiel Readiness Command (TARCOM) and Tank-Automotive Research and Development Command (TARADCOM) are being consolidated into a new command that will be called Tank-Automotive Command (TACOM). The consolidation will be completed by the end of fiscal year 1981.

THE OFFICE OF PERSONNEL MANAGEMENT has updated its 250-page *MANAGER'S HANDBOOK*, a primer on the major aspects of Federal personnel management.

Military and civilian managers or supervisors interested in obtaining copies of the handbook should inquire at their local civilian personnel offices.

LONGER AND TOUGHER BASIC TRAINING will soon face the new soldier. Plans for a tougher eight-week program were recently announced by the Army's Training and Doctrine Command (TRADOC).

The plans call for more demanding physical conditioning, for more training in additional soldier skills, and for higher standards in courses that are now being taught at all of the Army's training installations.

The new program will go into effect at some training installations in Fiscal Year 1981 and will be implemented in all training installations by the end of Fiscal Year 1982.

The present basic training program of instruction (POI) contains 308 hours. The new POI will contain 405 hours, an increase of 97 hours. The 97 hours include new subjects, subjects taught in the past but not formally documented, and additional hours on subjects now being taught.

Plans also call for the combat arms oriented one station unit training (OSUT) courses to be expanded by one week beginning in Fiscal Year 1982.

THE ARMY'S ADJUTANT GENERAL'S OFFICE reminds soldiers that, by law, they can only carry a total of \$20,000 insurance coverage in the Servicemen's Group Life Insurance (SGLI) and Veterans Group Life Insurance (VGLI) programs. It seems that some soldiers who reenter the service retain their VGLI coverage while also getting automatic SGLI coverage for a combined amount exceeding \$20,000.

Even though a soldier may be eligible for both programs at the same time, he must choose to be covered by one program for the full amount or he must split his coverage between the two programs in amounts that do not exceed a total of \$20,000. Adjutant General officials caution soldiers to consider carefully the premium amounts and the length of coverage time before deciding.

# FORUM & FEATURES



## TANK KILLERS:

### The Genesis

ROBERT C. SMITH



*EDITOR'S NOTE: This is the first in a six-part series. The succeeding articles will appear in our other issues that will be published during 1981.*

The tank is certainly one of the most awe-inspiring and downright frightening things on a battlefield, no matter where or when it is encountered. And no other vehicle has had so many tales and legends grow up around it. But despite all its power, a tank can be killed by a single determined man equipped with relatively inexpensive weapons. This is the story of the development of those weapons.

On 15 September 1916, the British Army, its leaders under tremendous pressure to show some results for the rivers of English and Commonwealth blood that had watered the mud of France, committed the first tanks to battle. These new, previously untried weapons provided a technological solution to the problems posed by trench warfare. The British tanks advanced at a crawl and broke through into the German rear with relative ease, suppressing the defenders with a combination of machinegun and

light artillery fire. For hours, the tanks moved through the German rear areas almost totally unopposed.

As is seemingly inevitable with the introduction of any new, untried weapon, a number of problems appeared that were unanticipated in the laboratory and undiscovered in its testing and training. The tanks and their accompanying infantry, without the long-term training necessary to develop a true combat team, became separated, with the infantry outdistancing the tortoise-slow tanks. And despite the large quantities of ammunition they carried, the tanks eventually ran out of ammunition and were reduced to crushing their opponents under their treads. Some tanks, after rolling majestically from hotspot to hotspot, simply ran out of fuel and stopped wherever they were. Others bogged down in the gelatinous goo that was the Somme front, while still others fell into ditches and were unable to extricate themselves. Almost as significant as the other causes of loss was simple mechanical breakdown, as the fragile, experimental armored vehicles experienced their first real life combat situations.

More significant that day, at least

for the future of antitank warfare, was that two of the clanking, death-spitting machines were knocked out of action by German field artillery units. The gunners stood by their duty and didn't abandon their guns; they simply leveled the barrels, cut their fuzes short, and waited while the tanks rumbled into point blank range. The result: the first two tank kills in history. As for the German infantrymen — many of whom had never seen self-propelled vehicles before, let alone armor-plated monsters that swept them with machinegun and light artillery fire — simply broke and ran. It was not a happy day for the infantry.

When the battle ended, the British had been rewarded with only a slight territorial gain, but with a tremendous psychological lift from having broken, no matter how temporarily, the almost invincible German defenses. In retrospect, it was obvious that the tanks should have been deployed in mass, but production was extremely slow and the vehicles simply were not available in large numbers. Too, there should have been some means of communication between the tanks and accompanying



infantry and between the tanks and higher headquarters. The problem, of course, was that radio was in its infancy, and a reliable unit with a long enough range would have been as big as a truck and would have required a special generator. There should also have been some supply arrangements so the tanks would not have been stranded without fuel or left with empty weapons.

Fortunately for the Germans, the British had been too rushed to do anything along these lines, or there might have been a major, unstoppable breakthrough. Chaos reigned on the German side of the line for several days as word of the monstrous new weapon spread through the army. Order was quickly restored, though, as soon as it was realized that artillery

crews, if resolute enough to stand their ground, could knock the British vehicles out of action.

### HEAVY BURDEN

The immediate tactical solution the Germans adopted was to withdraw a number of light 77mm guns from the front and keep them available in a pool to be rushed to any area threatened by a tank attack. But the withdrawal of even one gun from the artillery-dependent defenses threw a heavy burden on the equipment and manpower-starved German defenders.

It was obvious that the infantry, already in the front lines and most likely to encounter a tank before any-

one else, needed some means of dealing with a tank attack. Explosives and bundled grenades were used at first, more because they were available than for any other reason, but to use them the infantryman had to close with the tank — and that was difficult in the face of enemy fire. Later, an antitank version of the trench mortar was developed, but since these mortars were miniature artillery pieces, they were hardly infantry antitank weapons in the hand-portable sense.

There had to be a better answer to the tank situation for the German infantry, one that would protect the infantry and still allow the British tanks to be engaged and eliminated before they penetrated too deeply into the defensive positions. There was. For





some time, the Germans had been using a special round of ammunition, the "K" bullet, as a special long-range sniping round. Each round was carefully assembled and made to conform to uniform ballistics. What made it especially useful for long-range sniping was its core of tungsten carbide, which greatly increased the "carry" of the bullet.

Our history books are not too clear about the final decision, but it appears that some unknown genius on the German General Staff was enough of an engineer to know that tungsten carbide was almost as hard as a diamond, and if fired against a tank might penetrate its armor. Thereafter, the "K" round was used against the tanks, but because the British managed to keep all of their tanks, knocked out or otherwise, out of German hands, the real effectiveness of the ammunition was not known for some time.

Later, though, at Bullecourt, a vigorous German counterattack against an overextended Commonwealth unit that was supported by some tanks managed to capture two knocked out vehicles. Thereafter, every infantryman was issued a clip of "K" rounds, and every machinegun a belt of them.

## LARGE AND ROOMY

By any standards, the tanks these rounds were used against were incredibly large and roomy inside. They had to be. The engine squatted, noisy and smelly, at the front of the tank where it poured out a noxious mixture of combustion gases that choked the crew and almost blinded them with the fumes. Vision slits, peepholes, gun and pistol ports, doors, hatches, and ventilators poked numerous holes through the armor and almost guaranteed that some bullets would enter. An equal danger was that the molten lead from a hit, in an effect that presaged the introduction of the lined hollow charge, could produce casualties.

As if this wasn't enough, someone

had determined that the tanks, of rhomboidal design with the treads running around the perimeter of the vehicle, would have absolutely no suspension; it was considered too much of a luxury. The weapons were mounted in armored sponsons (a part of their naval design heritage) that were narrow, cramped, and vulnerable. Topping it all off was the fact that the tanks could crawl over even the smoothest terrain, a rare commodity indeed on the Western Front, at a maximum speed of only five and one-half kilometers per hour.

Riding inside one of those tanks was a chore, guaranteed to tax the strength of anyone who volunteered for the duty. Yet there was still one more danger that confronted the crews. Faced with a shortage of armor, the British built the Mark I and Mark II tanks with sheet steel — boiler plate, in the trade. As a result, many men died or were maimed as a result of "K" bullets whistling through that plate.

The British continued to use the Mark I and Mark II tanks because they didn't have anything better. They mounted a series of modest, usually marginally successful attacks, but the losses among their tank crews climbed while the Germans congratulated themselves on their cleverness.

In June 1917, German complacency was rudely shattered when the British introduced their Mark IV tank. This vehicle, unlike its predecessors, was immune to the "K" bullets, and once more the German infantry was made impotent by British technology. But even the Mark IV was not immune to the fires of the Germans' 77mm guns when they were deployed in an anti-tank role.

## NEW WEAPON

Now, though, rather than simply using an existing weapon, the Germans went further and developed the first true infantry antitank weapon that was man-portable (barely). This was the "T" rifle (T standing for

tank). Basically, it was a scaled-up version of the highly successful Mauser rifle design. The "T" rifle's caliber was 13mm; it weighed almost 22 kilograms, which meant that it had to be fired from a bipod; and its length was just about 170 centimeters. Because the new rifle was, in reality, a standard item enlarged to a new station in life, German industry was able to get it into production and issued in reasonably large numbers in just about a year.

The "T" rifle proved to be the most effective infantry antitank weapon developed during World War I, even though it kicked like the proverbial mule. Even so, like all antitank rifles, the "T" rifle was limited in its penetration; the only way penetration was certain was if a round struck a tank's armor plate at a 90-degree angle. If a round hit at any other, it simply would not penetrate and would be deflected. It is an interesting aside to note that the "T" rifle has soldiered on, usually ending up in the hands of legal (and more often illegal) elephant hunters who really appreciate the way these weapons can drop an elephant with one shot.

Despite the introduction of the "T" rifle, the German infantrymen remained almost helpless in the face of British tank attacks. The most effective tank killer was still the field artillery piece, and under pressure, the Germans developed special antitank forts that were deployed across likely tank approaches to their positions. These were liberally stocked with 77mm guns, antitank mortars, antitank rifles, machineguns, and specially trained men. In theory, the British tanks that managed to survive this combination of firepower would be attacked by groups of the specially trained men who would be armed with pistols and explosives. They were supposed to climb onto a tank, blow in its roof with their explosives, and finish off the stunned crew with their pistols. At least, that was the theory.

Unfortunately, when the tanks were inconsiderate enough to make

their approach from another direction, the poor infantrymen were once more exposed to the full fury of their attack with almost no means of resisting it. In some instances, a few brave men, driven to the extremities of human endurance, did climb onto tanks and attack them with any weapon they had available, including their bare fists. But this tactic rarely succeeded.

## SCHISM

When World War I ended, a strong schism in technology relating to armored warfare developed. The Allies had almost all the technology of tank

warfare, while the Germans maintained a temporary monopoly on anti-tank technology. The peace treaty attempted to deny the tank to Germany, but before the ink could properly dry on the paper, the German Army began investigating mechanized warfare. At the same time, their anti-tank technology and tactical expertise was taken over, almost intact, by the victors.

Unfortunately, the Allies were so mesmerized by the magnitude of their victory and the implications of the armored technology they had introduced that they neglected to study the German solution to the stalemate of the trenches — the development of *Hutier*, or infiltration, tactics.

World War I also marked the development of two radically different schools of anti-tank warfare, the artillery school and the infantry school. And during the next 21 years tank technology would take a giant step forward while anti-tank technology and tactics would lag far, far behind.

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# New Chinese Sagger

HARLAN W. JENCKS

The Chinese People's Liberation Army (PLA) is now deploying a copy of the Soviet AT-3 Sagger anti-tank missile. Despite this addition to its weapons inventory, the PLA remains extremely vulnerable to armored attack because practically all of the long-range AT weapons in its infantry divisions are nothing more than copies of Soviet designs from the 1940s and 1950s. These include 100mm guns (D-10 and M-1955), SU-100 self-propelled guns, and the Type-65 82mm recoilless gun (an improved version of the Soviet B-10). The 100mm guns, which are also mounted on the SU-100 and on the Chinese Type-59 tank, have effective AT ranges from 1,000 to 1,500 meters. At regimental level, the Type-65 recoilless gun has an effective AT range of only 390 meters.

Clearly, PLA units are vulnerable to tanks, since most of the more current Soviet tank guns out-range the

best Chinese AT weapons. Too, the newer Soviet guns are far more accurate and mobile. The 115mm gun on the T-62 tank, for example, has an effective range of about 2,000 meters.

In 1976, China, in exchange for providing aircraft and spare parts to Egypt's air force, received samples of late-model Soviet equipment, including several air defense missiles, T-62 tanks, MiG-23 (Flogger-E) fighters, and the Sagger. These convinced the Chinese high command of the PLA's vulnerability, a conviction that was reinforced after the death of Mao-Tse-tung in September 1976 by their increased contact with the Western world and its advanced technology.

China's leaders decided to meet their AT needs with the best available weapons. They knew that the Sagger was an aging system — it entered Soviet service in 1965 — and that it used a manual command-to-line-of-

sight (MCLOS) system, which is inferior to the American TOW and Dragon and to the European HOT and Milan systems. And for a time, they appeared greatly interested in both the HOT and Milan systems; in fact, in early 1979, they seemed on the verge of completing the necessary licensing arrangements to produce both of these systems in China. But China's invasion of Vietnam on 17 February 1979 triggered a major economic reassessment, and Peking suspended a number of major foreign industrial contracts and most current negotiations, including the HOT and Milan deals. In July 1979, China's leaders adopted a three-year economic program of "readjustment, restructuring, consolidation, and improvement." Under their "Eight Character Slogan," the economic priorities were to be agriculture, light industry, mining, communications, and infrastructure, and the develop-





A Chinese Sagger mounted on the lid of its carrying "suitcase." It is not visibly different from the Soviet original.

ment of science, technology, and modern management.

The absence of heavy industry from this list implied a very low priority for the acquisition of military weapons and equipment. Any lingering doubts on this matter were removed by China's Defense Minister who, in October 1979, wrote:

*The modernization of national defense cannot be divorced from the modernization of agriculture, industry, science, and technology, and, in the final analysis, is based on the national economy . . . we must first of all guarantee the high-speed development of the national economy. Blindly pursuing large-scale and high-speed development in building national defense will invariably and seriously hinder the development of the national economy and harm the base of the defense industry. Subsequently, haste makes waste.*

The short war with Vietnam in early 1979 had another, if largely unforeseen, effect on China — the PLA tankers learned about the Sagger the hard way. The Vietnamese, armed with Saggers, reportedly destroyed nearly 100 Chinese tanks in the first week of fighting, and this convinced the Chinese that the Sagger was vastly better than anything they had.

Full production of the Chinese

Sagger began in the spring of 1979, although there may have been some experimental production in 1978. The decision to go into full production was made after the Sagger's combat effectiveness had been demonstrated and the "Eight Character" program had ended hopes for the HOT or the Milan. The existence of the Chinese Sagger was announced in September 1979.

#### ADVANTAGES

While a 15-year-old MCLOS system is clearly a second-best solution, for China the Sagger has definite advantages: It is relatively simple to manufacture and operate; it is much cheaper than any semi-automatic command-to-line-of-sight (SACLOS) system would be; and it costs nothing in foreign exchange. It does demand gunners who are highly disciplined and who have superb coordination and vision, but the PLA has plenty of those. Most important, the Sagger extends the PLA's AT defenses out to 3,000 meters.

There are, of course, certain disadvantages. The Sagger is an obsolescent system that is being replaced in Soviet AT units by the new Spandrel, a SACLOS system comparable

to the TOW and the HOT, and the PLA will need 5,535 launchers if it is to field 18 launchers in each of its main force infantry division AT battalions, plus nine in each of its regimental AT companies. It will take an additional 3,321 to put three launchers in each infantry battalion's AT platoon. Obviously, several years and a lot of money will be needed to complete the job.

For effective training, at least 1,599



The Chinese Sagger control box. It appears to be identical to the Soviet original.

simulators (one per AT unit at battalion, regiment, and division) will have to be on hand, and the Chinese electronics industry may not be up to that task, even copying from the original Soviet models. The simulators will certainly call for the expenditure of still more money and time.

The PLA cannot afford a SACLOS system because of the low priority given the Chinese military industry and because of its own technical backwardness. The Chinese Sagger may be a second-best solution, but with it the PLA will improve its AT capability. Even if it is produced in sufficient quantities, the PLA will reach only the 1965 level of Soviet AT capability, and it will remain, therefore, vulnerable to armored attack.



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## Weapons Squad



CAPTAIN JACK H. CAGE

The primary function of today's mechanized infantry rifle platoon is to dismount from its vehicle and to either attack or defend using its organic weapons. Unfortunately, the most important of the platoon's organic weapons — its five M60 machineguns, its three M47 Dragons, and its one M202A1 multi-shot rocket launcher (Flash) — do not have assigned gunners. As a result, these weapons are almost useless to the platoon leader because too few of his soldiers know how to employ them properly. All too often, in fact, it is the lowest ranking and strongest soldiers in a platoon who become the gunners, regardless of their technical abilities.

I feel, therefore, that the mechanized infantry platoon should be

reorganized and that a weapon squad, integral to the platoon, should be created (See Figure 1). The assistant platoon sergeant, who has no real duties, would become the weapon squad leader and would be responsible for:

- Training the squad members to properly use their assigned weapons and associated equipment, including the squad's carrier.
- Tactically employing the squad's weapons.

The weapon squad would operate as one unit, or its weapons could be attached to the three rifle squads. The weapons squad carrier would have two AN/GRC-160 radios for the platoon leader's use. When the platoon dismounted, the weapon squad leader would control his carrier,

coordinate the employment of his squad, advise the platoon leader on the employment of the weapons, and, if necessary, control the platoon's carrier element in cases where both the platoon leader and the platoon sergeant accompanied the maneuver element.

For example, on a platoon battle position during a defensive operation, the weapons squad leader would:

- Advise the platoon leader on the location and use of the squad's weapons.
- Site the weapons.
- Advise the platoon leader on the best location for the platoon carrier element.
- Position the carrier element.
- Supervise the preparation of the weapon squad's range cards.



- Prepare a platoon direct fire plan for the platoon leader.

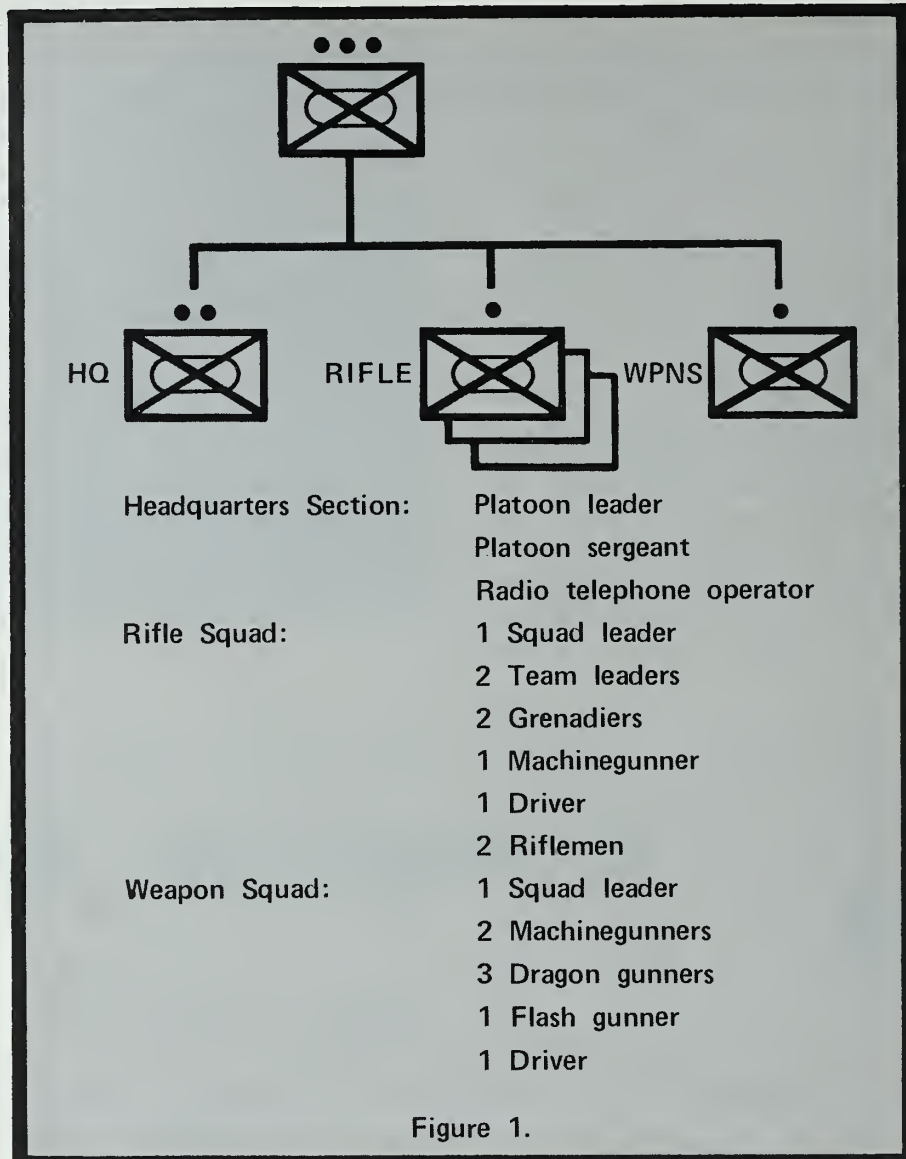
I can already hear some of the arguments against this proposal:

- “The span of control would be too great for the weapon squad leader.” One solution to this would be to add a team leader from one of the understrength rifle squads; he could lead the “Dragon team” or the “machinegun team.” Or, without additional personnel, a senior gunner could be designated for each of the two teams. The senior gunner could perform the functions normally assigned to a team leader.

- “The rifle squad leaders can adequately train the machinegunners, the Dragon gunners, and the Flash gunners.” In a full-strength, well-trained infantry unit, the squad leaders may be able to train these gunners quite well. But many infantry units today have young, relatively inexperienced squad leaders who must concentrate on teaching and performing the basics — battle drill, maintenance, rifle marksmanship, and the like. In such a situation, machinegun and Dragon skills become low priorities. And in a general war mobilization, these barely experienced men would soon become the “old pros.” Specialization would become critical because so little time would be available for predeployment, and later, for replacement training.

- “We would lose the assistant platoon sergeant.” Actually, the platoon would gain a specific title for an experienced leader and would profit from the specific job title of weapon squad leader. Besides, the position of assistant platoon sergeant is a relatively recent one that is rarely addressed doctrinally or functionally in infantry units.

- “Because the mechanized infantry will rarely operate dismounted, it doesn’t really need extensive and skillful use of machineguns or Flash.” Certain conditions dictate mounted infantry operations only, even though relatively little of the squad’s firepower can be employed from an M113. The infantry, however, must



fight the close-in battle and must be able to operate both mounted and dismounted. If weapons such as the M60 machinegun cannot be properly employed, the infantry’s ability to fight is severely weakened.

Those are the more plausible arguments against the reorganization, but there are also some distinct advantages:

- The reorganization would require the platoon to emphasize its key weapons instead of relegating them to a position behind the M16A1 rifle and the M203 grenade launcher, which are the weapons that have assigned operators.

- The weapon squad leader would be specifically detailed to train dedi-

cated gunners in marksmanship and in the tactical employment of the platoon’s key weapons.

- The weapon squad leader would be the platoon leader’s direct fire advisor to assist with range card supervision, the platoon’s fire plan, the location of the platoon carrier element, and the like.

- Gunners would be dedicated and specifically assigned to a weapon. Though the Dragon gunners and the Flash gunner would also often operate as riflemen when their respective weapons were not needed, their primary function would be the operation of their Dragons or M202s, not their rifles.

There is little need to reorganize

any mechanized infantry platoon whose men are proficient on all of its weapons. But those whose men are not proficient need to take steps to regain their lost skills. I believe that my proposed reorganization would place the needed emphasis on the weapons and the skills necessary for the platoon to fight, and, with a large portion of command attention added, it would enable the platoon to use its most potent weapons to their full potential.



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# Handoff of the Battle

**CAPTAIN FRED A. TREYZ**



Ever since the Mideast war of 1973, our military leaders and thinkers have been debating the active defense, and there are still many misconceptions about what it is and what it is not. For example, some think it is simply a modification of the mobile defense, and some think it is a *reactive* defense. It is neither.

The active defense revolves around maneuver and the ability to orchestrate firepower. By maneuvering his forces a commander can avoid intense enemy fires and increase his firepower at key times and places on the battlefield, even while defending.

Perhaps the riskiest and most difficult part of the active defense — and the part we need to pay more attention to — is the handoff of the battle between a covering force and the MBA units. And while this may sound simple, it involves a great deal more than just planning control measures on a map, distinguishing the location of the main battle area units, and employing the principles of a passage of lines. Because there are so

many variables that affect the handoff of the battle, it is important that all commanders, down to company or team level, understand the planning and coordination that is involved in the handoff of the battle.

The first step in understanding the process of handing off the battle is to understand the function of the covering force. Its real mission is to find the enemy and fight him vigorously enough to make him deploy his forces to attack, thereby causing him to reveal the area and the direction of his main thrust.

The covering force should be as far forward of the MBA as possible so it can wear down the enemy before he reaches the MBA. This depth also gives the covering force commander the flexibility he needs to move and concentrate his fires at any point while reducing the vulnerability of his own units.

After the covering force has performed its mission, it will usually move back to refit, rearm, and reorganize to fight again. It is in this pro-

cess of moving back, usually through units in the main battle area, that problems can arise. This is the reason why detailed planning must be done in advance.

## DECEPTION

Deception in the handoff can be achieved and the operation can progress more smoothly if the commander of the MBA force assumes command and control of the covering force units before they move through his area. In other words, as the covering force closes on the MBA, some and eventually all parts of the covering force should come under the control of the commanders in the MBA.

An important part of deception in the handoff must be the coordination of electronic warfare measures. Planned communication security leaks on the location of the MBA can be used to confuse the enemy. The MBA units can use the radio frequencies and call signs of the covering



force to reduce the effectiveness of the enemy's signal intelligence. Ideally, the handoff operation should be so well planned and coordinated that neither the covering force nor the MBA force will need to use their radios during the handoff. If they have to, though, they should maintain normal radio traffic.

It may also become necessary to deceive the enemy by attacking in another area to divert his attention from the covering force. An air strike or heavy artillery barrage might have the same effect.

### MOBILITY ADVANTAGE

If the covering force is to hand off the battle successfully and in an orderly manner, it must gain a mobility advantage over the enemy, either by increasing its own mobility or by degrading the enemy's mobility. Ideally, it should do both.

And if the covering force is actively fighting the enemy at the time of handoff, it must effect a clean break. This does not mean that the enemy is given a respite; it means that when the covering force breaks contact, other forces must assume the fight.

As the covering force fights its way toward the MBA, the responsibility for the control of the covering force fight should be transferred to a commander in the MBA. This shift should

be determined through mutual agreement between commanders or it may be directed by higher headquarters to take place at a specified time during the covering force operation.

For example, when the covering force passes across a certain designated phase line well forward of the FEBA, an MBA commander should move out to assume control of the covering force units. From that point he can exercise adequate control and can issue orders to the covering force on how to fight and maneuver back to the MBA.

As the covering force reaches a phase line closer to the MBA battalions, the MBA scouts should become its eyes and ears and take up the fight alongside the covering force. If the enemy and the covering force units are actively fighting each other and

arrive at the MBA at the same time, the covering force unit should be attached to the MBA unit and added to the MBA fight, if necessary. The MBA commander must not forget, though, that the goal in the handoff is to get the covering force out of the way as soon as possible and to deceive the enemy as to the location of the MBA.

The handoff of the battle in the active defense is a highly complex operation, and it calls for a great deal of planning and coordination between CFA and MBA commanders. If it is to be understood by all those who must take part in it, it needs to be emphasized and discussed more at all levels of schooling and command. What we really need is a continuing dialogue of ideas on the subject throughout the Army.



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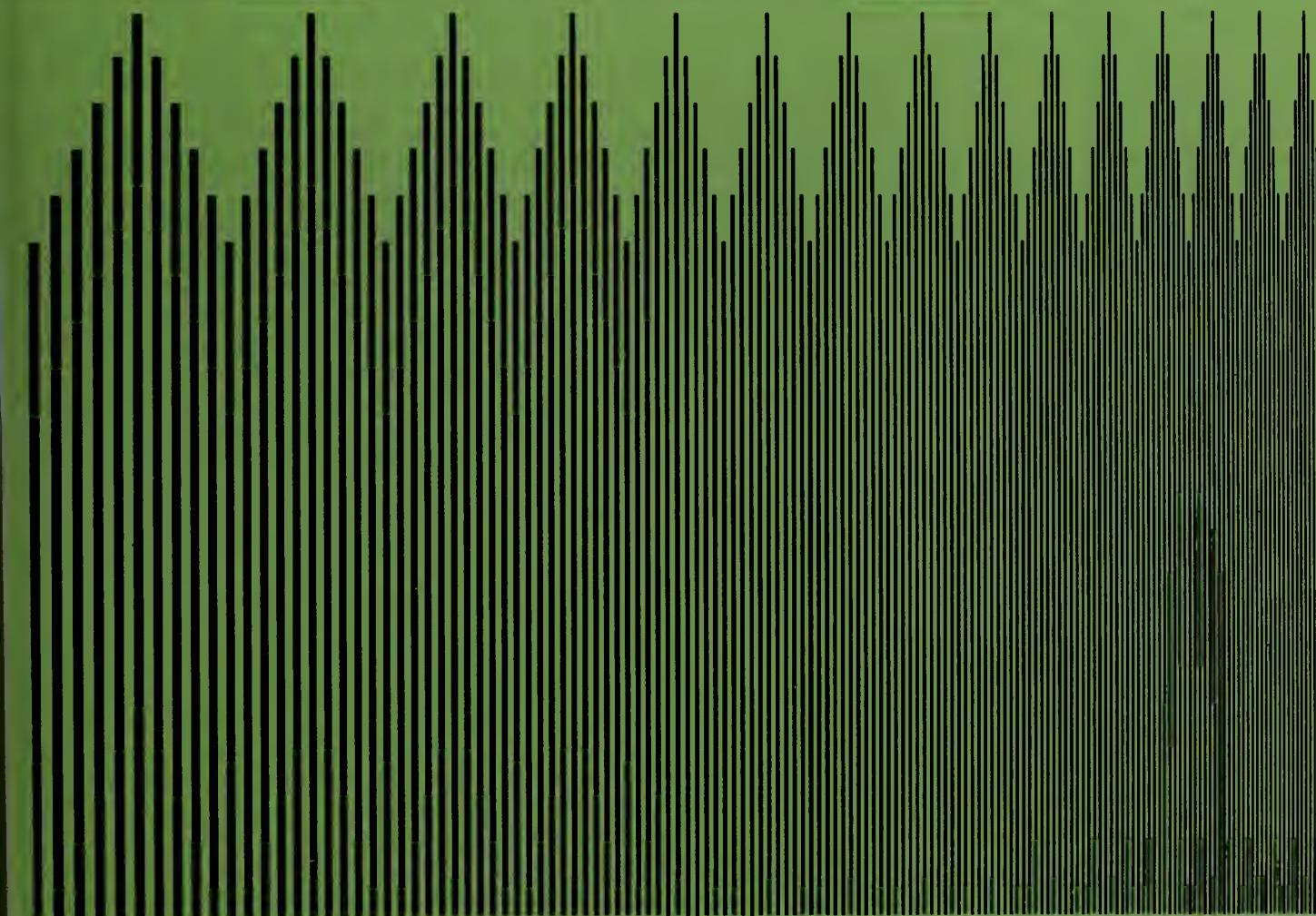


THE



MICHAEL VLAHOS

INDIVIDUAL  
WEAPON



The infantryman's individual weapon has always been as much an emotional symbol as a functional instrument of battle — sometimes more so. Whether that individual weapon happened to be a bamboo lance, a bayonet, or a rifle, the tendency has been to cling to it and to claim for it more power than it actually had.

In the Napoleonic Wars, for example, the bayonet was responsible for only one percent of the battlefield wounds. Even so, most battlefield commanders of that day insisted that it still had a prized, even crucial role in battle. Why? Chiefly because the bayonet was a descendant of the spear, the pike, the *pilum* of Caesar's legionnaires, of Alexander's *hoplites* — men who set out to conquer the world and bring everlasting glory to the profession of arms.

It was impossible, therefore, for the managers of the armies of Austerlitz and Waterloo to abandon a weapon that had come to represent not merely a style of tactical behavior, a way of battle, but professional behavior, a way of war and of the warrior. The world view, the operational ethos of the men of that day seemed to be emotionally built around the sword and the lance and the pike. How else could British cavalry regiments, to cite just one example, introduce a new combat saber in 1911, or tuck bamboo lances under their shoulders at Mons?

In more recent times, something similar has been true of the rifle — the soldier's basic individual weapon. With the introduction of the magazine repeating rifle, the gun finally replaced the bayonet as the central tactical instrument and emotional symbol of the world's infantry regiments.

Before 1914, the magazine-fed, bolt-action rifle could shatter both artillery and cavalry concentrations at ranges of more than 1,000 meters. With the tactical development of both automatic weapons and indirect fire artillery during World War II, though, the infantry rifle became an auxiliary weapon. Massed artillery preparations came to dominate offensive breakthroughs, and the machinegun was crowned queen of the defense. The proportion of battle wounds attributable to rifle fire dwindled to 15 percent.

In the trench warfare that characterized World War I, the classic infantry rifle — the final arbiter in decisive clashes like Koniggratz and Sedan — was undercut on three levels. At the longer engagement ranges, field artillery was suddenly out of the reach of direct rifle fire. At the range of direct visual engagement, massed automatic weapons at company or battalion level dominated the battlefield. At short, interactive ranges, during an infantry assault phase, for example — whether employed by assaulting or defending units — the bolt-action rifle did not provide a sufficient volume of fire per unit of critical engagement time. And for exposed assaulting units especially, volume of fire during the closing engagement was the *critical* factor.

At assault and close-combat ranges, the bolt-action rifle was further undercut by more effective volume and time-fire weapons, such as the submachinegun and the repeating shotgun — both of which were developed by

the end of the war. The fields of France and of Flanders also promoted the development of the individual automatic rifle, exemplified by the Browning automatic rifle of 1918. Here was a rifle that was admittedly bulky, but capable of being used also as a light machinegun at direct-fire ranges and as a volume and time-fire assault weapon at close-combat ranges.

## SYMBOL

The classic infantry rifle of Koniggratz and Sedan was, therefore, fast becoming more a symbol of than an instrument for the infantryman. Still, not one Western military establishment followed the requirements of tactical doctrine that they had both experienced and developed through four painful years of war. Instead of proceeding on an evolutionary path toward an individual assault weapon by uprating the submachinegun concept, or by distilling the automatic rifle concept, Western armies between the wars continued to stress the long-range, small-magazine classic rifle.

In 1939, the belligerent European powers entered combat with the same bolt-action models they had used some 20 years earlier. During World War II, only the United States could boast of a universal individual weapon that was even semi-automatic. In a rifle environment, the Garand was undoubtedly superior to the bolt-action Mauser and Arisaka. But with an eight-round clip and the mule-kick of the 30-aught-6, this 43-inch wonder, in spite of the gloss of high technology, was conceptually tailored to the battlefield conditions and the battle doctrine of another age.

As in World War I, the tactical realities forced a compressed and improvised evolution of the individual weapon. With the *Sturmgewehr* MP 43, the Germans at last created an infantry weapon that was suited to the combat environment of contemporary infantry. But despite the pressing calls for more such weapons from his front commanders, Hitler stifled the development of the MP 43 for essentially the same reasons that the *Sturmgewehr* concept had been rejected or ignored for 25 years: It did not create an image that supported the classical tactical doctrine of the *primacy of infantry*, and the dominance on the battlefield of massed, aimed rifle-power.

In the war's ground battles, three types of weapons and weapon-users had emerged to dominate the tactical scene: armor, artillery, and heavy weapons units at the company and platoon level (mortars, heavy automatic weapons, antitank recoilless rifles, and rocket launchers). This meant that as a critical battle factor the rifle — the individual weapon — had again been eclipsed. The rifle remained a crucial factor only in tactical situations where "disaggregated lethal energy" was still the most efficient means of delivery: house-to-house combat, jungle combat, night raids, rear-area security, infantry team infiltration or assault.

Even so, the evolution of "modern" weapons after



1945 continued to depend on a combination of institutional perceptions and technological limitations. Technology inevitably changed the face of battle, but service images, habits, and cherished notions — traditions and prejudices — just as inevitably shaped the manner in which that technology was applied.

With the introduction of the MP 43 — later the *Sturmgewehr 44* — the *Wehrmacht* had become the first modern army to field an individual weapon that was suited to the combat environment of the 20th century battlefield. A 30-round box magazine provided a reasonably high rate of fire for this individual automatic weapon. Its length, at 940mm, was in the compact, carbine range. Finally, it was capable of controllable fire during the critical moment of an engagement. The mating of automatic fire and the less-powerful, short (*Kurz*) round made this possible. (The 7.92x33mm *Infanterie Kurz Patrone*, in its own way, represented a significant small arms breakthrough.) Without this control function, automatic fire was at best a generator of suppressive noise, and more than likely, a waste of good brass.

The Soviets learned from the Germans' example — the hard way. Their 7.62x39mm 1943 round was introduced at the same time they were receiving hard combat experience with the German *Kurz* round, and they tested their AK-47 assault rifle soon after the fall of Berlin. With a highly compact length of 896mm overall, and a curved, 30-round box magazine, the gas-operated AK-47 traced its conceptual ancestry to the *Sturmgewehr 44*.

In the West, the *Sturmgewehr* concept emigrated to Spain, where German engineers such as Ludwig Vorgrimmler further developed the tactical concept of the MP 43/44 at the *Centro de Estudios Tecnicos de Materiales* (CETME) in Madrid. The product of their labors, the *Fusil de Asalto* (assault rifle), drew its technical inheritance from the German prototype *Sturmgewehr 45*, a delayed blow-back assault rifle. With a length of 970mm and a 7.92x40 round, the CETME rifle was the only true assault rifle to reach production status until the 1960s.

The standardization of the U.S. 7.62x51mm round in 1957 ended the development of European rifles that had been based on British .280 (7mm) round. Both the Enfield EM2 and the *Fabrique Nationale* FAL, chambered to this cartridge, would have made fine assault rifles. The EM2, designed as a "bullpup," was only 889mm long. The FAL was 960mm — only 55mm longer than the M1 carbine.

As a result of these developments, the armies of the NATO alliance came to be equipped with heavy, cumbersome, high-powered rifles that were essentially over-designed for the modern battlefield. The FN FAL, uprated for the 7.62x51mm cartridge, grew to more than a meter in length — up to 1,143mm overall. The U.S. simply continued its development of the Garand to the point where it could be officially re-designated, in 1957, the M14 — 1,120mm long, with an all-up weight of 6.6 kilograms and limited in volume of fire by a 20-round magazine. The Germans, meanwhile, developed their

own individual weapon to replace the FN FAL, and chose an evolution of the CETME assault rifle. Built around the NATO "standard" round, however, it also grew in length to more than a meter.

All of the 7.62mm weapons proved to be essentially uncontrollable in the full-automatic mode. The British recognized this, and removed the selective-fire feature from the L1A1, their version of the FAL, limiting the weapon to semi-automatic fire only.

Still, none of these efforts produced a true assault rifle. Apart from the purely local and indigenous CETME rifle, the first such weapon produced in the West in large numbers was the controversial, but ultimately convincing, M16.

The introduction of the M16 was allied to a deeply-rooted, emotional image of the primacy of infantry on the battlefield. But Vietnam provided a combat environment where such traditional images could no longer be stretched to accommodate an outworn weapon concept. The M16, with an overall length of less than one meter, and weighing only three-fourths as much as the M14, had in its 5.56x45mm round the means for controllable automatic fire that could not be provided by the bigger rifles in the NATO arsenal.

It took 50 years for the United States — as just one national example — to introduce an individual weapon truly suited to the battlefield environment and to the battle doctrine that had already emerged by 1918.

Yet the battlefield refuses to remain static. With the advent of long-range antitank and laser designation systems fielded by mobile infantry teams, the importance of mid-range, aimed rifle fire for their protection and suppression may again dominate local segments of the battle area. Under these circumstances, the M16, with its limited range and accuracy, could become the anachronism of tomorrow's battlefield — like the "trap-door" Springfield in Cuba in 1898, or the bolt-action Lebel in the trenches of Verdun.

The Joint Services Small Arms Program Management Committee has now begun deliberations on a possible replacement for the M16 rifle. The committee's initial thinking seems to focus on a set of parameters that would produce, essentially, a product-improved M16. We can only hope that these men do not cling to old traditions and prejudices, that instead they try to cast ahead to the yet-alien sites of future combat, for this is where the new rifle, by whatever name, will be tested.



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# MORE THAN A SHOTGUN



BY CARROLL D. CHILDERS



The usefulness of a shotgun in combat has long been a subject of some controversy, but unfortunately, a great deal of romanticism about its use prevails. One of the best reference books on the use of shotguns in armed conflicts is *The World's Fighting Shotguns*, by Thomas F. Swarengen. Although he may not have included every design and innovation, and may not have told every war story, Swarengen's coverage is outstanding and certainly the most complete that has been published. Therefore, I won't plow well-tilled soil other than to mention the two extremes of the opinion spectrum.

In talking with dozens of people who either have had personal experience with shotguns or have had "conversational" experience with shotguns in combat, I have concluded that we can statistically prove anything we want to about their use in combat. The extremes, though, are indicated by the two specific interviews recounted below. Other interviews fill the void between the extremes and form a classic bell-shaped curve that says, in general, "Yes, there is a place for a shotgun in the inventory."

A crusty Marine Corps major with Force Recon background and a collection of ribbons that said he had fought in everything back to and including World War II told me, "I wouldn't carry a shotgun if I had a choice." He elaborated at great length on the pro's and con's of the weapon and its ammunition and summed up by stating, "I have killed hundreds of men in combat since I started counting. I've shot 'em and stuck 'em and hit 'em with most every kind of weapon you can name, and, in my opinion, the shotgun, except in limited situations, is simply not the killer people think it is." One exception, of course, is when it is used at very close ranges. But to that he added the caveat that "what we (currently) have is too unhandy to reload quickly and it doesn't hold enough rounds to begin with."

An ex-Marine infantry commander I talked to was of

the opposite opinion. He beamed knowingly as he hefted the mockup of one new weapon design concept. "God, did I need this in 'Nam!" His company-level experience in the I Corps area of Vietnam had left him with the belief that there was no finer individual weapon for ambush, counter-ambush, or close-in defense, particularly night defense. He recounted the details of engagements in which the shotgun played the dominant role.

Admittedly, the engagements were at close range, but that was the nature of the war at that time and place. "I feel a lot of lives were saved because of the use of the shotgun," he stated. "We couldn't get very many through the system so after our initial success with the few we had, guys would go off on R&R and come back in the country with several shotguns of whatever kind they could buy. But the gun was so good in close quarter fighting, and we had more than our fair share. We all wore body armor and steel pots and in a 360-degree fight, we just had no hesitation because we had found out that we probably would not kill each other. As it turned out, we did not."

And so it goes. The yes people, the no people, and the yes-but people. For every weapon there is a countermeasure — then a counter-countermeasure. That's what keeps research and development people in business. And I have finally arrived at the conclusion that while the shotgun has proved its usefulness, it has been stereotyped as a close-in weapon, typically 12-gauge in size, probably pump action, with a limited ammunition selection, and a weapon that is likely to fall apart in a combat environment. The image is strong and clear: Dad's bird gun has been turned into a military weapon by the simple addition of a non-glare finish, a sling, a magazine extension, a bayonet, and the like. All of the shotguns we used were basically commercial, off-the-shelf weapons that were never designed to perform in a combat environment.

I believe we must break the bonds of conventionalism and think not of a shotgun, or even of a combat shotgun, as previous articles have suggested. We must think not simply of a weapon whose capabilities go beyond scattering buckshot through the brush with debatable effect but rather of a weapon system, a system that can take advantage of the available technology and provide the individual soldier with versatility and effectiveness that combatants of the past never even dreamed about.

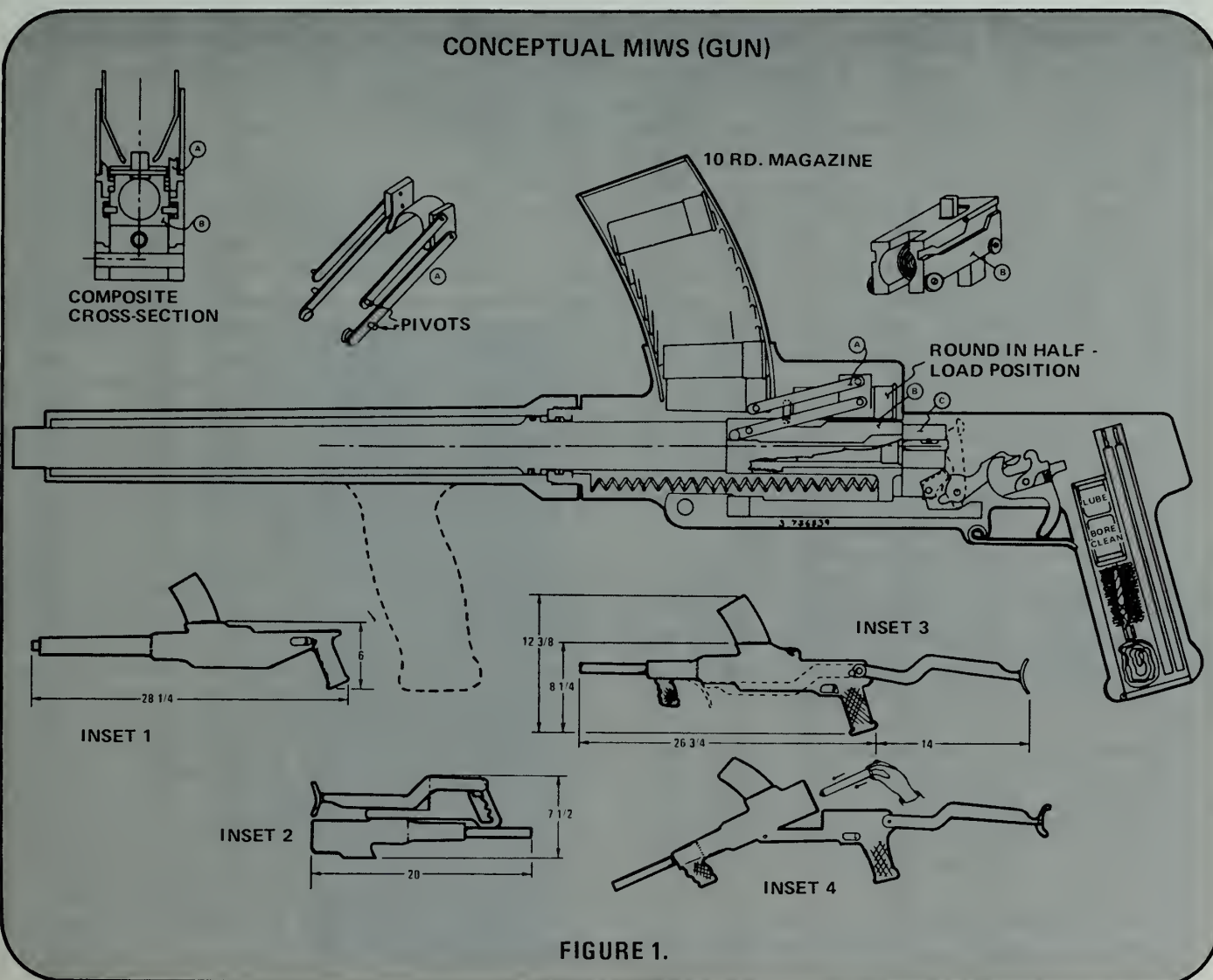
## WEAPON SYSTEM

Such a weapon system is now being sponsored by the Joint Services Small Arms Program (JSSAP) Management Committee. It is called the Multi-Purpose Individual Weapon System (MIWS), not a particularly spectacular name to be sure, but unique in several respects. First, it is a joint services project that is going to be developed (if funds are made available, of course) from the ground up. The Army, Marine Corps, Navy, Air Force, and Coast Guard have jointly agreed that they need such a system, and they have successfully resisted the natural tendency to rush out and invent a new gun for the sake of invention. The MIWS program concerns a

system. The approach is first to design a family of ammunition to accomplish the required mission, then to design a gun to shoot the ammunition. In other words, the end product will not be constrained by some arbitrary characteristics — lethality, accuracy, and the like — of gun design. The gun, after all, is but a means to an end.

Off on the right foot, then, the JSSAP Management Committee has appointed the Naval Surface Weapons Center at Dahlgren, Virginia, as the R&D laboratory to manage the MIWS. Dahlgren's interest in such a weapon began in 1969 as a result of the fighting then going on in Vietnam, particularly that fighting being done by the Third Marine Amphibious Force (III MAF). Shotguns were used by all of the units in the III MAF area to varying degrees, and the merits of the various shotguns being used were often discussed. There was always a common denominator in the estimate of the worth of a shotgun in combat — it was very good in certain situations, but its shortcomings were a lack of sustained firepower, the inability to hold a point of aim, the lack of ruggedness of the gun and its ammunition, and its lethal range.

Dahlgren began a low level effort to address the problems identified in the field, but as the program to turn the





war over to the South Vietnamese matured, less and less support was given to R&D projects related to ground combat in Vietnam. Before the death of the project, Dahlgren did develop a weapon system concept, and in 1972 was assigned Patent No. 3,736,839 for a dual mode shotgun. This is the concept that is being resurrected and redefined by JSSAP as MIWS.

MIWS is currently in the exploratory development stage. The objective at the moment is to come up with the technology needed to develop the ammunition, the terminal effectiveness, the gun mechanisms, and the overall MIWS system configuration. In short, what is envisioned is a family of ammunition, a gun, and a few ancillary devices that could make the system more useful in the field.

The family of ammunition (FOA), for example, may include, among others, the following types:

- Anti-personnel rounds: Shot shells with improved range, lethality, and area coverage; fragmentation grenades; disabling rounds (non-lethal); and point target rounds.
- Anti-materiel rounds: Shaped charges; white phosphorous or thermite rounds; and HEP rounds.
- Chemical rounds: Parachute or retarded flares; star clusters; signal smoke rounds; and riot control rounds.

Some of these rounds may be up to six inches in length, and the gun itself may not be 12-gauge anymore.

Dahlgren expects the MIWS to be a hand-held, gas-operated, magazine-fed gun with a dual mode of operation and certain unique features. Because of its dual mode of operation, it will be capable of being either magazine-fed, or loaded and fired one shot at a time if it is broken open. Easy access to the breech will allow the use of very long rounds. Other features Dahlgren has under consideration are:

- Selectable left or right ejection.
- A top or side mounted magazine. (An offset sight would be no worse than the above-the-bore sight currently used on the M16 rifle.)
- Full and easy access to the breech.
- A human engineered forward handgrip.
- A universal muzzle attachment point for the quick attachment of a pattern control device, a suppressor, and a line launcher.
- A selection of shoulder stocks so that the gun could be tailored to specific missions. (Thus, MPs might prefer the solid wooden stock for issuing a vertical butt stroke, whereas a Ranger might prefer a folding stock, or none at all.)
- Instant reload of shot shells in 10- or 20-round magazines.
- An ammunition carrier specifically designed to support the family of ammunition.
- A selective fire capability with a removable key that would permit unit commanders to select which weapons would fire in a semi-automatic and which in a full automatic mode.
- Recoil reduction mechanisms.
- Ammunition control. (Consideration will be given to providing some inherent incompatibility of the FOA with

readily available commercial shotguns, while retaining the capability to fire a standard gauge round in the MIWS.)

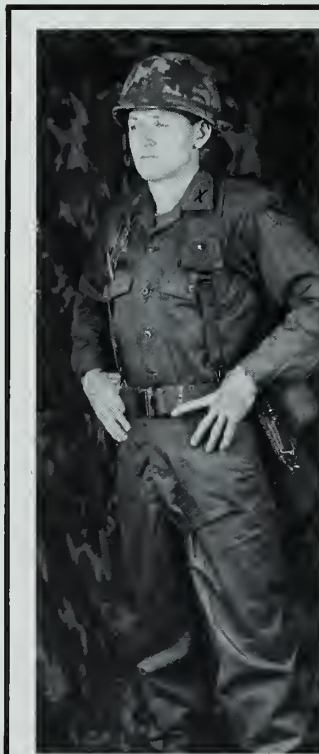
- A manual override of the auto-loader mechanism. (The forearm grip, for example, could be linked to the action so that in the event of a stoppage, the immediate response would be to thumb a lever and go to the pump action mode.)

JSSAP plans to solicit proposals from industry during Fiscal Year 1981 for the MIWS development. Already a number of major national and international system developers have expressed interest. Dahlgren's plans include an intent to support at least two gun designs through the advanced development stage to insure the kind of product that competition in the marketplace generates.

The FOA will initially focus on developing three rounds — the shot shell, the fragmentation round, and the tactical CS round. Concepts for the other family members will be carried on at the same time. The actual development of the complete FOA will depend upon available funding and priorities, but JSSAP has formulated a plan to allow coordinated, phased development.

Figure 1 is shown not because it is the concept selected for development, but rather to illustrate a possible way of achieving the stated goals and to communicate the kind of innovation and departure from the norm that may be required if the JSSAP goals are to be met.

Because the shot shell will be the round most commonly used in the MIWS family of ammunition, and because the shotgun is the weapon that MIWS is specifically designed to replace throughout all of the services, people have a tendency to call the MIWS a shotgun. But it is not a shotgun. It is a weapon system that embraces an improved shot shell as its primary round of ammunition.



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*This is the last in a series of three articles abstracted and edited from Winning In The Cold, a pamphlet compiled by the 8th Infantry Division in Germany.*

Keeping up with the operation and maintenance of equipment and vehicles is never an easy task for a unit leader, but this task becomes even more difficult in cold weather. To cope with such difficulties, each unit leader must learn as much as he can about his equipment — especially what precautions he must take in the winter that he may not have had to worry about in warmer climates.

He must see that the soldiers in his unit are also acquainted with these precautions and that they follow the special procedures in the operator's manuals for their various items of equipment. Special attention must be paid to training drivers and taking care of batteries. And, finally, he must plan the logistics of moving all the necessary cold weather gear around the training areas or the battlefield.

There are 14 general effects that cold weather has on almost all equipment:

- Lubricants become stiff, and when a lighter oil is substituted it is consumed faster.
- Plastics and hard rubber parts become brittle and may break. Seals and other synthetic parts are more subject to failure.
- Gauges and dials may stick and give erroneous readings. (A *gentle* tap usually frees them.)
- Hand brakes will freeze to drums if they are left applied when wet.
- Fuel tanks, filters, and lines either become blocked or they freeze from condensation.
- Linkages get stiff and either become difficult to operate or give delayed responses.
- Paint becomes brittle and cracks easily.
- The oil in crankcases turns to sludge from condensation if engines are not warmed to operating temperatures.
- Battery efficiency is reduced, and a discharged battery may freeze and crack.
- Engines are hard to start and more vulnerable to

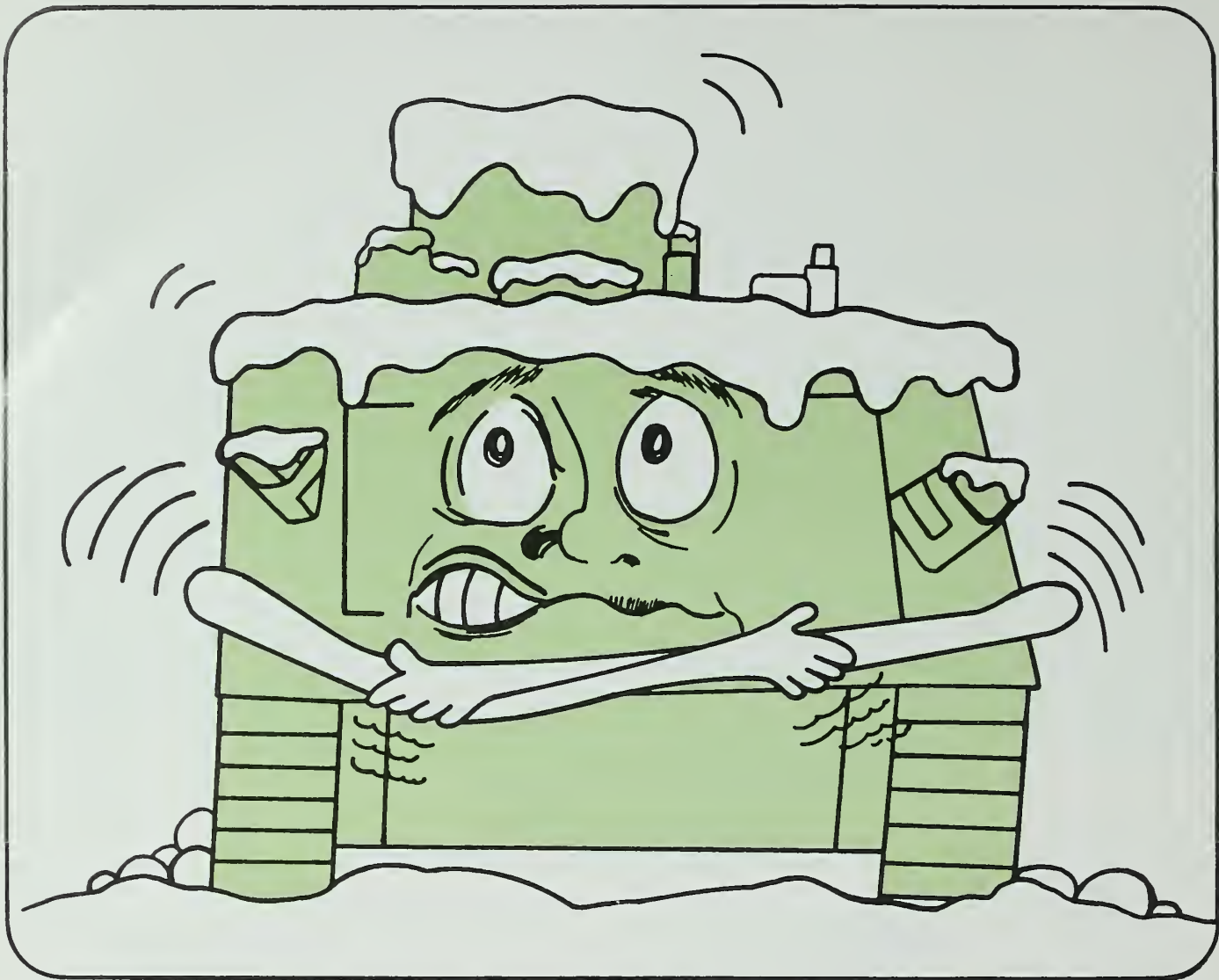


# COLD WEATHER OPERATIONS

## Part 3

INFANTRY Staff





hydrostatic lock.

- Machined and unpainted surfaces rust and corrode more quickly.
- Drain cocks and plugs can freeze tight, and this, in turn, discourages daily or periodic draining.
- Power train breathers and vents can clog from slush, and they can freeze and block the flow of air.
- Windshields crack easily when they are hit by blasts of hot air from defrosters.

In some cases, a piece of equipment may have certain design shortcomings that a leader must know how to overcome. The 400-gallon water trailer is a case in point. Its use in cold weather, as some commanders are painfully aware, is complicated by the fact that it is made of fiberglass. This means that an immersion heater cannot be used to heat the water in it, and it is difficult, therefore, to keep a unit's water supply from freezing.

Even with all of these problems, though, most of our equipment and vehicles will operate effectively in temperatures as low as -25 degrees Fahrenheit, but only if the special cold weather procedures in the -10 operator's manuals are followed. And this is the key to success — it is up to the unit commander and his NCO

leaders to know what is in the manuals and to see that they are followed carefully.

### PREPARING OPERATORS

Training the drivers of vehicles is of prime importance. The driver's manual, TM 21-305, contains fundamental information on driving that leaders and drivers alike must understand and apply.

The laws of momentum, traction, and inertia become critical when a vehicle is operating over a slippery or potentially slippery surface.

Tracked vehicles encounter no significant resistance when the snow blanket is thin. But as the blanket becomes thicker, the tracks begin to offer increased resistance as they sink in. This requires greater traction force over a surface that has degraded the vehicle's surface grip. The depth of the snow must also be considered. In general, a tracked vehicle will get stuck if the depth to which the tracks sink exceeds the ground clearance of the vehicle.

Wheeled vehicle operations are also affected by snow

and wet ground. Wheels can operate effectively, though, as long as the footing does not allow them to sink in more than one-third of their diameter.

Tracked and wheeled vehicle drive train systems are subjected to unusual operating stresses because of the build-up and packing of snow and mud, which freezes to sprockets, control rods, road wheels, and brakes.

Track pads should not be removed. A 1969 Arctic Test Center evaluation of the T142 track for the M60 series of tanks showed that there was no significant gain in traction when the track pads were removed and showed, in fact, that there was a 30 percent increase in stopping distance from 20 miles per hour. Operating with alternate pads removed should be considered only as an emergency recovery procedure and then only for very short distances.

Operators must understand that a routine preventive measure can become critical under cold weather conditions. A frozen fuel system, for instance, can result from the failure to drain a fuel filter daily. The same omission for the air distribution system can cause a vehicle's brakes to lock.

An operator can save a windshield by properly preheating the cab of his vehicle; he can save an engine or transmission by using correct idling procedures.

Training for vehicle operators should routinely include the following general rules:

- Engines should be run below 1,000 rpm until the engine instruments read normal.
- When moving out, the operator should use low range, check for dragging brakes, and allow power train and gear boxes to warm up.
- An operator should not idle a diesel engine for a prolonged period of time after the vehicle has completed its mission.
- Drivers should learn how to load their vehicles properly for operating on snow and ice. For example, a full load should be spread evenly over the bed of the vehicle while a partial load should be concentrated over the rear axle.

## CARING FOR BATTERIES

One item of equipment that needs special care is the battery. Both vehicle and dry cell batteries are critical in cold weather, and they must be kept from freezing. For vehicle batteries, this is accomplished by periodically charging them through the vehicle system. (The vehicle charging cycle must be long enough to reduce the effects of sludging lubricant.) Dry cell batteries should be kept warm inside of clothing or stored where they will not become excessively cold.

Batteries should never be heated on a stove or by any flame source. If they are they may explode. The only solution for a frozen battery is to let it thaw slowly indoors.

Water should be added to a cold or discharged battery concurrently with charging to insure the proper electrolyte mix and to prevent a layered freezing of the water.

Operators should know, too, that a battery's average life is often less than half of the life expectancy stated by its manufacturer.

Slave starting should be done according to the procedures outlined in the equipment operator's manual. Slave receptacles are standard on some vehicles, such as tanks and personnel carriers; other tactical vehicles get slave receptacles only as part of their winterization kits.

Newer equipment is now being fielded with a NATO single-prong slave receptacle as an interoperability improvement. The new slave cable for this equipment comes with an adapter, which allows it to be used with older equipment that still has the two-pronged receptacle.

The fabrication of a portable jump-starting outfit from a salvaged 2½-ton truck battery box will help motor pool and contact teams start vehicles.

Jump cables must be hooked up positive to positive and negative to negative on alternator charging systems — even a slight flash on a wrong post can burn out components.

A live vehicle being used to jump start another should be kept running at 1200 rpm, and the two vehicles should have similar battery configurations. For example, a tank with four 6TN batteries should not be slaved from a quarter-ton truck with only two 2HN batteries. It is all right to slave a vehicle from one with a higher capacity electrical system, but it must be done with caution — a high capacity system will cause a smaller battery to explode if it is internally shorted or completely discharged.

## PREVENTIVE MAINTENANCE

A leader can reduce the effects of cold weather operations on his equipment by planning ahead and by providing for daily preventive maintenance.

Antifreeze testing and servicing should be done in the fall to prevent damage when the first cold snap hits. But even without testing, a leader should know that his equipment will be damaged if he has not forecast the need for antifreeze and requested it in advance.

The desired level of temperature protection is also a planning consideration. In mixing antifreeze, the adage "if some is good, then more is better" will hold true only within certain limits. Too much antifreeze in the mixture will actually cause the protection level to decrease.

The lubrication order is also an important publication in preparing equipment for cold weather operations. It contains the lubrication specifications for the equipment in different temperature ranges. The order is not all-encompassing, though. For example, condensation and fuel dilution will turn oil to sludge much faster. Condensation will also affect differentials, transmissions, and transfer cases, requiring periodic draining between regular lube services.

Exhaust systems cannot be neglected, either, since the vehicles are usually operated with their windows and hatches closed. A faulty exhaust system under such con-



ditions can become a killer. Again, commanders must make sure that nobody sleeps in the vehicles.

The leader should schedule specific equipment maintenance periods, and they should be used to clear snow and mud from intakes, gear boxes, breathers, and vents. Coolant checks are particularly critical in the M113 series of vehicles because low levels of coolant can cause the engine blocks to crack. Filters and air systems must also be drained daily during this maintenance period as well as immediately after shutdowns.

In addition to these scheduled maintenance periods, preventive maintenance in cold weather must also be applied during all operational phases. A specific case in

point is the positioning of vehicles — tanks and trucks must not be parked in water or soft mud in freezing conditions. If no alternate positions can satisfy a unit's tactical requirements, the surface must be prepared by laying down branches, brush, or other suitable bedding material to keep the tracks or tires from freezing to the ground.

Vehicles that are used to extract other equipment become less effective as the ground surface worsens. For example, to extract a tank weighing 97,000 pounds, it could take as many as four other tanks or M88 recovery vehicles (112,000 pounds), assuming the worst case on snow or ice, without applying some method of increasing



the mechanical advantage of the recovery vehicles.

Leaders should emphasize some of these preventive aspects of maintenance in their regular training programs. Operators should be taught to clear breathers and intakes of snow and slush, to dry brakes after they drive through water, and to check oil for fuel or water content during their normal pre-operational checks. All of these will help prevent breakdowns and damage to equipment.

In addition to doing preventive maintenance on the equipment, the soldiers have to do some preventive maintenance on themselves to reduce the possibility of cold injuries.

Soldiers who are maintaining equipment in the cold must be instructed to prepare their work areas and to operate in buddy teams. Neglecting to put down an insulating tarp or some sort of ground cover is an invitation to injury, and a soldier who is intent on his work may be careless about checking himself for frostbite or other cold injury.

The men should be especially careful when using petroleum derivatives and alcohol-based fluids. These liquids, on the whole, have very low freezing points. If a POL handler spills MOGAS on himself after it has reached a temperature of  $-10$  degrees Fahrenheit, he will be instantly and severely injured. The same applies to handling antifreeze compounds for cooling and fuel systems.

Protective clothing for maintenance personnel — gloves, goggles, and coveralls — are even more important in cold weather.

## LOGISTICS PLANNING

In cold weather a lot of extra equipment and consumables must be carried along on training missions. This means that the leader of each unit must plan in advance what he needs and how he can carry it. The onset of cold weather is no time to be scurrying around trying to see what is on hand.

In addition to the extra clothing, food, and protective equipment needed for the soldiers, there are many other items to be considered.

Before winter arrives, tire chains used the previous winter should be checked and repaired and new ones obtained. (Vehicle tire chains are listed in the respective parts manuals.)

Vehicles and other equipment without slave receptacles should be identified early. Only certain tactical vehicles, such as tanks, have slave receptacles as standard equipment.

In planning fuel needs, S4s and support platoon leaders should be aware that fuel consumption can rise by as much as 25 percent for vehicles that are operating in deep snow, slush, or mud. Various types of water, space, and vehicle heaters also consume increased amounts of fuel in winter.

Camouflage screens and materials also have to be considered. With the advent of winter, the standard winter

U.S. and Europe verdant pattern does not provide the white camouflage needed to blend into a snow background. The Army does provide white camouflage paint, but it is unsatisfactory because it freezes at 32 degrees Fahrenheit and must be stored in heated areas during cold weather operations. A suitable expedient whiting, chalk dry powder (whitewash), is available through facilities engineers.

Camouflage screens are now being produced in snow and arctic blend configurations, but these will be in limited supply for some time.

The woodland screen can be adapted for a snow environment if it is garnished with white cloth obtained from salvaged sheets or mattress covers.

Commanders also need to discriminate between the need for radar transparent and radar scattering screens. This will depend on the type of equipment being covered. An emitter, for example, cannot be effectively camouflaged by a radar scattering screen because the antenna has to be outside the net.

All of these extra items must be pre-packed and organized into platoon, squad, and section subpacks to allow for rapid and uncomplicated distribution. Each unit should have, as minimum requirements, 15 days of ration heat tablets, candles, dehydrated soup, and quantities of overwhite camouflage clothing, whitewash, sheet or mattress-cover garnishing, and food service disinfectant in their prepacks. These are in addition to the items that are used all through the year.

S4s and support platoon leaders should review their basic load requirements to make sure additional quantities are obtained of fuel, alcohol, antifreeze, and other items whose consumption can be expected to increase. When assembling prepack and basic load supplies, the S4s and unit supply personnel should insure that inventory and shelf life review procedures are incorporated into their SOPs.

Prepack configurations should be designed to conform to standard pallet dimensions and incorporated into loading plans to allow for rapid deployment loading from unit storage locations.

Training in the logistics of winning in the cold is important. During garrison operations in the winter, leaders should take every opportunity to practice cold weather procedures. Training should be scheduled at the same time the equipment is being prepared for winter operations.

Accomplishing the mission is the important thing. To do that, each leader has to understand how winter conditions affect movement, cover, concealment, and combined arms teamwork on the battlefield. Before he gets to the battlefield, though, he has to know how to protect his soldiers from cold injury and how to keep his equipment and vehicles operating effectively.

After the leader has learned these lessons, he has to see that his soldiers also learn and practice them. To do this, he must make every winter day a winter-training day. If he does, his unit should be able to accomplish its mission and win — even in the cold.







LIEUTENANT HAROLD E. RAUGH JR.

# the **GERMAN** Ranger School

The German Ranger School, headquartered with the German Airborne School near Altenstadt in Bavaria, offers a course that is designed to train the *Einzelkämpfer* (literally "single fighter") to lead his squad or small group of soldiers back to friendly territory after having been surrounded and cut off behind enemy lines.

In that course, the student is trained to lead and supervise all aspects of the return movement, including survival techniques, crossing obstacles, and conducting raids or ambushes to secure needed supplies.

The four-week course is physically demanding and includes a minimum of 260 hours of instruction broken down as follows:

- Hand-to-hand combatives (27 hours).
- Water crossing techniques, mountaineering, forced marches, knot tying, timed runs, physical training (39 hours).
- Survival training (edible plants, meals, shelters, and fire-building); camouflage, cover, and concealment; orienteering and land navigation (51 hours).
- Troop sanitation and treating the wounded (3 hours).
- The Code of Conduct and the Law of Land Warfare (1 hour).
- FTXs in which students act as patrol leaders and react to various situations (118 hours).
- Training on operations orders and on planning and

conducting operations (21 hours).

Each class consists of 30 to 40 soldiers — officers and enlisted men — divided into two sections of 15 to 20 each, which operate independently of each other throughout the course.

Groups of American soldiers have attended the course — in November 1976 and again in September 1979. On these occasions, German soldiers voluntarily paired off with their American comrades to help them with the language and with German customs, traditions, and techniques. The training the Americans received was more or less typical of the course.

The first week of the course was conducted at the kaserne where the students were billeted, but for subsequent weeks the students were bussed to a provisional camp at Sauwald, 30 kilometers to the south.

During the first week, in a method similar to our performance-oriented training, the students received classroom instruction at the kaserne, punctuated by half-day excursions to the field for instruction. All of this was followed by a practical examination and an actual test. The training included first aid, military map reading, survival shelter and fire building, planning an operation, the operations order, field equipment shakedown, hand-to-hand combatives, map sketching and compass work, knot tying, and a land navigation course.

## LAND NAVIGATION

On Saturday of the first week, at 0300, a class on land navigation began. Each student was given five minutes to sketch on a sheet of graph paper the first two points and all physical features and routes of the first graded land navigation course. The instructors then collected the maps and gave the students the locations of the next two points only by a direction and a distance. The final two points were annotated on a small portion of the map sheet and given to the student. A small wooden plate, which the student would retrieve, had been placed at each of the points.

At 0400, the students were loaded onto a bus and dropped off at their individual starting points. Each soldier was assigned a number and a color for his route, which corresponded to the color of the wooden plates. When the soldier completed the course, he was evaluated on the basis of the number of plates he had recovered and the total time he took to complete the course.

During the second week, hand-to-hand combatives were conducted daily, beginning with vigorous warm-up exercises. Also emphasized were land navigation, survival skills, techniques of movement, and crossing water obstacles.

Two more land navigation courses were conducted, the first on Monday night, beginning at 2100. Each soldier was dropped off at a different starting point and was required to find his first four points by using the given directions and distances. His last two points were designated by six-digit coordinates, and he was issued a portion of a map sheet showing the last two points but not the

first four. The second land navigation course was similar to that conducted at the end of the first week, except that the distances were longer, the terrain was more varied and rougher, and it was traversed entirely at night.

Survival was the main subject on one day with the students snaring trout from a stream using improvised materials and their bare hands. They also killed chickens and cleaned, prepared and cooked them with the fish, topping off the meal with a salad of dandelion leaves and tea made from hazelnut leaves.

On another day, water survival training was conducted, which included rubber rafting, making and using poncho rafts, and rappelling and jumping from a dam into turbulent water. Other training sessions included tying knots, negotiating a difficult obstacle course, issuing patrol orders, and conducting a movement through enemy lines and some hasty ambushes.

## THIRD WEEK

Before being bussed to the provisional camp for the first day of the third week, the soldiers were timed on a three-kilometer run over rugged terrain, carrying their rifles and their rucksacks.

Later, at the camp, the training included a class and a practical exercise of the operations order, a rappelling examination over 65-meter cliffs, hand-to-hand combatives, and the final land navigation course. For that course, each soldier had to find all six points knowing only a distance, a direction, and a clue to the location of a point, such as a barn, an intersection, or a similar landmark.

On Tuesday, the training included the preparation of an ambush, hand-to-hand combatives, and a class on escape and evasion, followed by an actual escape and evasion exercise. For this exercise, the soldiers were dispatched in pairs with all equipment *except* compass, flashlight, and map. Their sole navigational aid over the eight-kilometer course was a sketch they made in seven minutes from the master map.

Following the escape and evasion course, the students ran an obstacle course with all their gear in the dark and then took an examination on night navigation using only the stars.

Instruction on using terrain models and planning operations was presented the next day along with the methods of attacking a stationary object. The day concluded with training on re-entering friendly front lines and on negotiating a suspended cable using the commando crawl.

After hand-to-hand combat training on Thursday, the first field training exercise (FTX) began, and it lasted until late the next day. The FTX covered three map sheets and more than 70 kilometers; no route was specified, although a number of through points and meeting points were designated. Late that night one patrol of nine men ambushed a truck and secured one loaf of bread and one German "C-ration." After resting for a short time in a farmer's barn, the patrol continued on its mis-



30 sion at 0400 and executed a river crossing using poncho rafts. A little later, the patrol was ambushed and suffered a casualty. The wounded soldier had to be transported by his comrades on a makeshift litter over the last four uphill kilometers of the exercise.

The last week of the course began with the final examination on hand-to-hand combatives at the kaserne. In addition to falls and defensive movements, the students had been taught 12 attacking movements, and five of these 12 made up the examination, which was graded by the chief instructor and two other instructor-evaluators.

Following this testing, the students again moved to the provisional camp where they received the operations order for the final three-day FTX. During the first 20 hours of the exercise, the only actions were a vehicular ambush (in which the students again seized food) and an ambush against the patrol.

Early the next morning, the patrol established a hiding place — a principal tactic of the *Einzelkaempfer*. (In their hiding place, the German Rangers clean their weapons, eat, build a fire, and dry their clothes, in addition to resting. Before moving again, they secure an alternate hiding place and at dusk continue the patrol.)

Again the patrol moved all night without stopping to rest. A link-up was effected at a nearby lake, and at 0500, after traversing frost-encrusted meadows, the students were taken across the lake by power boat, and the exercise ended in the Bavarian Alps.

## EVALUATION

Except for classroom instruction, all phases of the training and the practical exercises were graded stringently. Each activity was graded on a scale of 1 through 6, with 1 being the highest and 5 or 6 indicating failure. For grading purposes, the course was divided into four major subphases:

- Physical training (runs and obstacle courses).
- Hand-to-hand combatives.
- Military leadership (while leading a cut-off squad during the FTXs).
- Combat skills (land navigation, knot tying, rappelling, poncho rafts, commando crawl, building shelters and fires, edible plants).

As each activity was graded, the grades were totaled and averaged within each subphase so that at the end of instruction only one grade remained for each of the four subphases. The scores of the four subphases were then totaled and averaged, and the student had to have a final score of 3.4 or better to win the badge. (The German Ranger Badge is not awarded to anyone who has a final grade of 5 or 6 in any one of the subphases, no matter what he scores on the others.)

Although the German Ranger course is not really comparable to the U.S. Army Ranger course, a few general observations come to mind.

The training in hand-to-hand combatives and the land navigation courses at the German school were far

superior to those conducted at our Ranger school. Each soldier had to have a high degree of competence to satisfactorily complete the proficiency tests. During the hand-to-hand combatives training, more emphasis was placed on learning, skill, and proficiency rather than on harassment, and the warm-up exercises before the training were much more vigorous.

The German Army field uniform is made of a much more durable material than U.S. Army fatigues. In addition, the German uniform has ventilation holes in the armpits of the shirt and in the crotch of the trousers.

The German compass is calibrated into mils, not degrees, and all directions are rounded off to the nearest 100 mils. Also, the compass has no bezel ring, which lessens its accuracy.

The rations, of course, were quite different. For example, at the provisional camp a hot meal was usually served to the students at noon, which generally consisted of a thick stew with meat, rice or noodles, a vegetable (sauerkraut, sliced tomatoes, or sliced cucumbers) and hot tea. Following the noon meal, each student drew his rations for that evening's meal and the following morning's breakfast. These two meals consisted of two *brotchen* (small rolls), a wedge of cheese (3.5 to 7 grams), a fairly large slice of liverwurst or other meat, two patties of butter, two tea bags, and a loaf of bread for each four or five students.

The American soldiers who completed this demanding school not only augmented their individual skills and leadership abilities, but also gained an unsurpassed appreciation of the army of their valued NATO ally, West Germany.

At the end of the course, the American and the German Rangers returned to their units, where they are expected to be able to perform the tasks they have learned and to teach them to their comrades as well. Each of them will always take pride in being an *Einzelkaempfer* and in wearing the coveted badge with its oak leaves and acorn — those age-old symbols of strength and endurance — which signifies their accomplishment.



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# SOVIET ARMY WAVE ATTACK PHILOSOPHY

P. H. VIGOR

A military commander, if he is to take a sensible decision concerning the number of waves, or echelons, in which to deploy his forces, can only do so if he bases that decision on the actual conditions of the particular operations he is engaged in. Soviet writers, indeed, repeatedly emphasize the imperative need to study the actual circumstances before coming to a decision, and roundly condemn any general who has imbued himself with a fixed theory of echelonning which he applies quite irrespective of the situation with which he is faced.

Since, therefore, there is no fixed Soviet doctrine which can be applied, blanket-fashion, so as to determine the number of echelons, it is clear that any attempt to discuss the Soviet attitude to echelonning must be narrowed down by making a number of assumptions concerning the type of operations being dealt with. For the purposes of this article, these

assumptions are as follows:

- This hypothetical war in Europe will be one that the Russians have started. A war in Europe might arise from other causes (by accident, for example), but our present study is of an outbreak of hostilities resulting from a deliberate attack on NATO by the forces of the Warsaw Pact.

- The war will be fought without the use of nuclear weapons of any kind. It would obviously be a colossal advantage to the Russians if this could be accomplished. In a conventional war, large numbers of Soviet soldiers and airmen might perhaps be killed, and the territories of Poland, East Germany, and Czechoslovakia might again be a battleground; but so long as Russia herself remained effectively inviolate, these casualties and those other kinds of damage would certainly be acceptable in the eyes of the Kremlin.

- NATO, on the other hand, is pledged to resist invasion, and to resist it even by using nuclear weapons if this should prove to be necessary. Nevertheless, it is well known that nuclear release would not be given at the outset of a Soviet offensive. Indeed, it has often been stated in the Western press that five days would have to elapse before tactical



32 nuclear weapons could be fired, and it is not hard to imagine circumstances in which a longer period than that would be necessary before the political leaders of the NATO countries could bring themselves to agree to a nuclear release.

- It therefore follows that the Soviet Armed Forces have five days, or even more, within which to attain their military objectives before NATO decides to go nuclear. Five days is not really a very long period, so the Russians' only hope of attaining a really worthwhile objective is to move extremely fast; and it is well known that the Soviet Armed Forces are trained and equipped to do this as a first requirement.

- It also follows that the USSR has a great need to achieve surprise in these circumstances because its speed of advance would be very much greater than if NATO were to be properly alerted. The achievement of surprise would also bring the further considerable advantages of fewer casualties and much higher chances of victory.

We are therefore postulating a non-nuclear and very fast-moving battle, in which NATO mobilization and deployment have been at least partially pre-empted. The purpose of this article is consequently to inquire into what sort of echelonning might be used by the Soviet commanders for the purpose of fighting this sort of battle.

## PREREQUISITES FOR VICTORY

The Soviet view has traditionally been that the chief factors making for victory in any particular military operation were:

- The correct choice of direction for the main axis of advance.
- The mass concentration of men and equipment along that axis.
- The capacity for maneuver at all levels.
- Surprise.

Today, it includes the factor of speed. For this and a number of other reasons, the relative importance of the various factors has probably now been changed to the following:

- The correct choice of direction for the main *blow* (not the main axis because, in the nuclear age, the main blow may have to be delivered along two or three axes rather than along one, as formerly).
- Surprise.
- Speed.
- Concentration of effort in support of the main blow.
- Simultaneous attacks upon the enemy throughout the entire depth of his deployment and upon objectives deep in his rear.

It should be emphasized that no actual list giving these factors in the above order is known to the present author, but Soviet writing in recent years has strongly indicated that it is, nevertheless, the correct one.

The existence of nuclear weapons has made it far too dangerous to mass men and equipment along only one axis of main advance, as the Red Army in the Second World War so successfully used to do. As a result, the Soviet concept of the offensive now envisages the advance of the troops along two or three sub-axes, *these being not necessarily equally spread across the whole width of the attack sector*. There is, however, an unwelcome consequence for the Russians in that the present composition of the Group of the Soviet Forces in Germany (GSFG) would not permit the attainment along each of these sub-axes of a crushing superiority over the enemy in men and equipment without the bringing-up of considerable reinforcements from within Soviet territory before the attack began. To bring up these reinforcements, however, would immediately sound the alarm for the NATO countries and the attainment of surprise would thereby be rendered impossible.

But since we have postulated that the USSR attaches enormous importance to achieving surprise — and since it believes that, if surprise could be attained, a much smaller superiority over the enemy would be acceptable along the various sub-axes of the main advance — the only solution available to the Russians is to attack NATO from a standing start. The assumption that the Russian offensive will be launched from a standing start is therefore a natural and basic premise of this article.

## PURPOSE OF ECHELONNING

Soviet military writing declares that the purpose of deploying forces in more than one echelon is to maintain the momentum of the advance. If the enemy defenses are sufficiently strong to cause heavy casualties to those troops that first assault them, a new and completely fresh wave of attackers must be available to take over from the first wave, and thereby keep up the pressure on the enemy defenses.

[There is, incidentally, a difference between a second echelon and a reserve. A second echelon is a body of troops appointed for a specific task: to take over from, and then complete the work of, the first echelon. A reserve is a body of troops to be used *ad hoc*, according to the wishes of the commander.]

Deploying troops in more than one echelon is particularly necessary when the enemy has prepared a defensive position in depth. In the Second World War on the Eastern Front, German defensive positions in depth were typically divided up into three lines of permanent fortification, each being 5 to 6 kilometers deep and separated from the next line by 10 to 12 kilometers. The total depth of the German position would therefore be 40 to 50 kilometers. The German defenses around Gumbinnen in 1944 were a good example of this.

The Russians found that the best way to deal with this sort of defensive position was to assault the first



line after a heavy, though often rather short, artillery bombardment, using their first echelon for the purpose. This first echelon was expected to pierce the first of the enemy's defensive lines and to penetrate into the depths of the enemy position. At this juncture, the Soviet formation's mobile group would be committed to the battle, would pour into the breach, exploit the success of the first echelon and, at the same time, help that echelon to continue its advance. Assuming that all went well, the first echelon was expected to continue to advance until it bumped up against the second line of the enemy's prepared positions, by which time it was likely to be exhausted.

At that moment, therefore, the Soviet second echelon took over; and it was this second echelon, as yet uncommitted to battle, which was expected to pierce the second line and to fight its way forward to the third line. With a bit of luck, the third echelon would be captured relatively easily. But if the battle was expected to be particularly tough, and casualties heavy, the Soviet senior commander might well deploy his attacking formations in as many as three echelons in order to have a completely fresh echelon with which to assault the third defensive position. It is worth remarking that the Stavka expected that Soviet first echelons would pierce the first line of the enemy defenses within 24 hours of the commencement of the attack or, at the very most, within 36 hours. Anything else was regarded as highly abnormal and none-too-pleasant consequences were likely to follow for the commander.

Of course, in actual practice, by no means every offensive of the Red Army worked out as neatly as is implied above. But we are talking here about concepts and, though in the course of the Second World War the execution might sometimes have faltered, the concept remained unchanged.

Although the double-echelon deployment was standard practice where the enemy defenses were

heavily fortified and deeply echelonned, the Soviet commanders were often willing to attack in only a single echelon when circumstances were different. This was because a deployment in just one echelon allows the maximum weight of men and firepower to be brought to bear on the enemy defenses at a given moment of time. There were a number of occasions during the Great Fatherland War when the need for this outweighed the need for having fresh forces to maintain the pressure on the enemy.

Deployment in a single echelon, however, may well be impossible because of the nature of the terrain. If the ground over which the attack is to be made is a broad, flat plain with a firm surface, the choice can be made as to the number of echelons without any regard to topography. If, however, the route to be taken traverses mountains, swamps or forests, it may well not prove to be at all practicable to deploy in a single echelon, however much the commander may wish to do so. This point is of importance, and must be borne in mind when reading the rest of this article.

Soviet practice suggests strongly that Russian commanders are particularly willing to attack in a single echelon at the start of a war or a particular campaign. The campaign in Manchuria in 1945 is an excellent example of this and it will be used later to illustrate in some detail the thesis of this article.

Before going on to discuss that campaign, however, it is essential to point out that echelonning can be and is practiced at all levels in the military chain of command. In other words, if an army group attacks, it can arrange its constituent armies in one, two, three, or even more echelons. By the same token, the armies themselves can deploy their respective divisions in one or more echelons; the divisions, their regiments similarly; and this process continues down to and including the battalions.

Nor, in a given operation, does the number of echelons have to be the same at each of the various



levels in the chain of command. It often happened in the Great Fatherland War that a Soviet army group attacked with its armies in one echelon, that the armies deployed some in one, some in two echelons, while the divisions might have been in two echelons and their constituent battalions in one.

The battalions themselves were most frequently deployed in just the single echelon during what the Russians call the first period of the Great Fatherland War, when the Red Army started upon its first counter-offensives. Up to that time, the divisions, regiments, and battalions had all always attacked in two echelons, because this was what was prescribed in the regulations. However, the two-echelon deployment was soon seen to be a mistake. This was because the German defenses at that time did not consist of deeply echeloned lines of well prepared fortifications, but of scattered, fortified strongpoints and defended areas. Furthermore, the Soviet forces at that time were not numerically superior to the Germans in men and equipment; on the contrary, they were usually inferior. Consequently, a state of affairs which in any case was bad for the Russians was made much worse by the deployment into two echelons. A significant portion of any Soviet formation was unable to play any part in the first stage of the attack since it was being kept back, in its capacity as the formation's second echelon, for the second stage of the battle. Therefore, when the Soviet first echelon hit the German defenses, it was frequently outnumbered and outgunned by the Germans, and suffered defeat as a result.

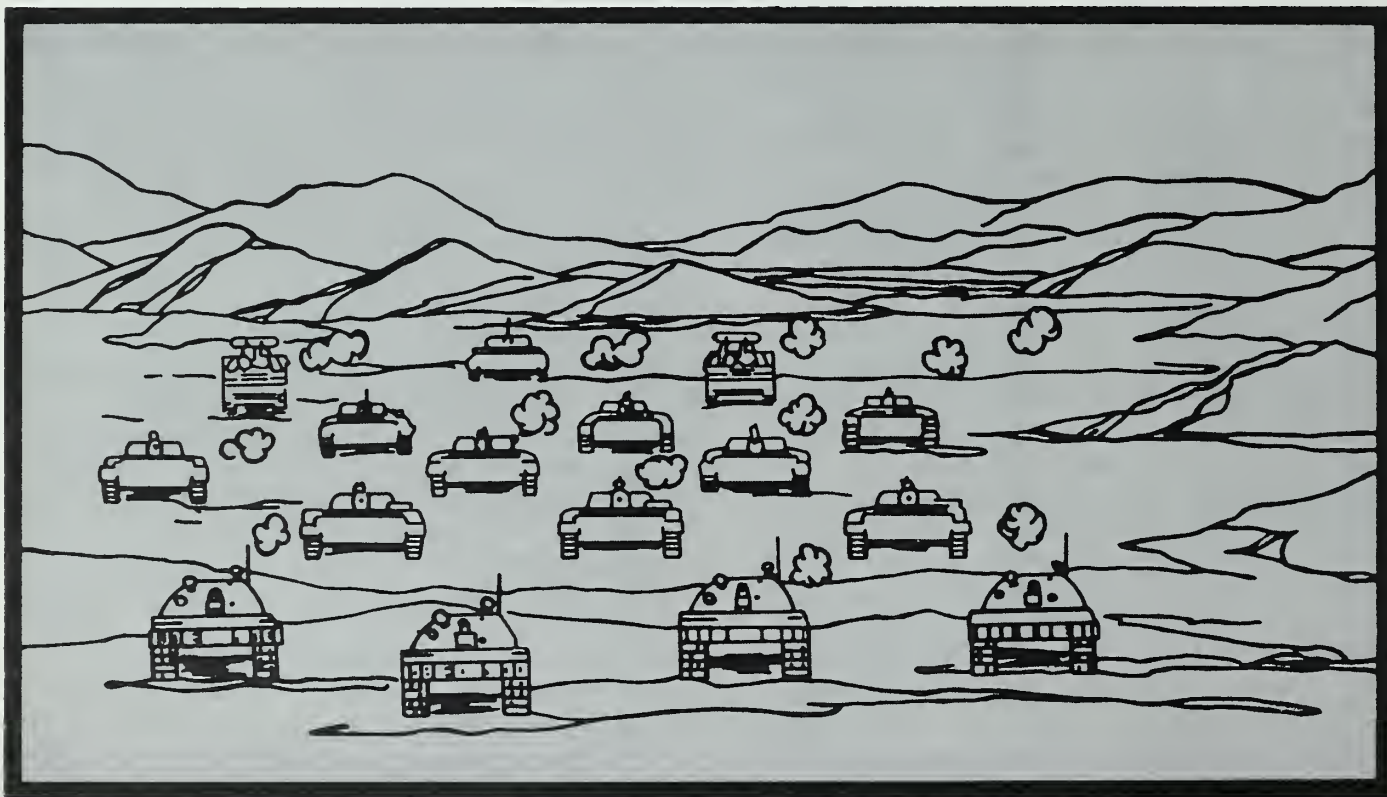
To remedy this, the Stavka ordered the Red Army to adopt the single-echelon formation as the standard mode of deployment for the attack, and that order

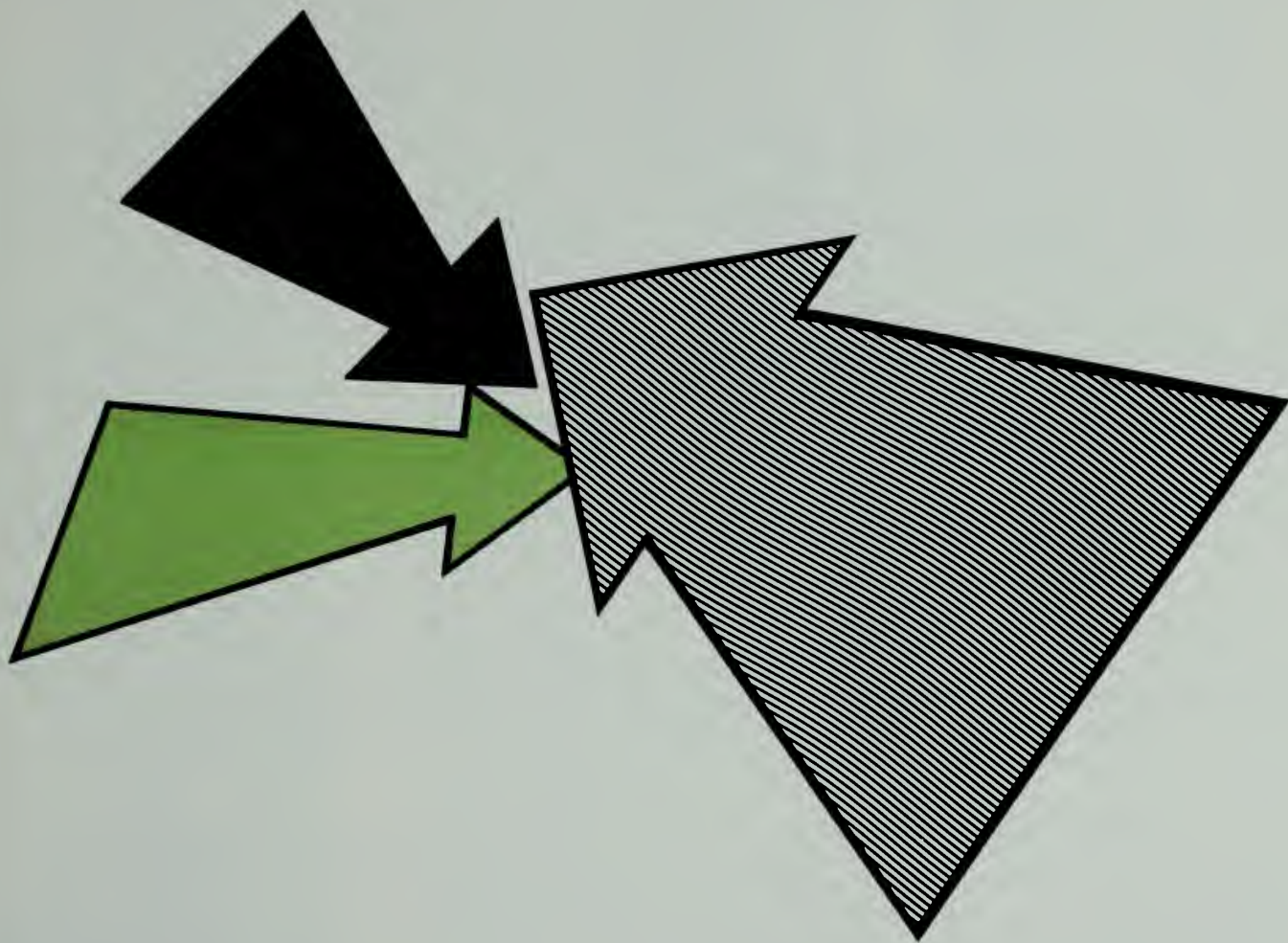
remained until circumstances changed later in the war. By then, the Germans had gone over to defense based on deeply echeloned, well prepared lines of permanent fortifications. Secondly, the numbers of Soviet men and weapons had by then increased so much that the Red Army could afford to have two echelons and still have numerical superiority over the Germans at the critical points of the first line of defenses.

## THE WAR ON THE EASTERN FRONT

The history of the war on the Eastern Front also makes it clear that, where the maximum blow possible was required and subsequent supplementary effort was a secondary consideration, a one-echelon formation was decided upon in those cases where topography permitted. This was particularly true when surprise was regarded as attainable. When, however, surprise was *not* thought to be attainable, when the offensive came in the middle rather than at the beginning of a campaign, or when there was clearly a requirement for a second echelon as a means of breaking through an enemy's second line of defense, then a two-echelon formation was decided upon at any and every level.

Further examples of these various considerations being applied in practice by the Soviet Armed Forces can be found in this campaign. It is indeed a particularly pertinent campaign to study, because it marked the opening by the Soviet Union of a new theatre of war. What was done by the Soviet commanders in Manchuria may therefore have something to say about what would be done by their





modern successors if the Kremlin decided to open a theatre of war in Europe. It is all the more likely to do so because the Russians secured in Manchuria an overwhelming surprise at both the strategic and the operational level; and this, as discussed earlier, would be their aim if they were to plan an offensive in Europe.

The Russians started their offensive at 0010 hours on August 9, 1945, when none of the Japanese politicians or military commanders were expecting them to do so. Admittedly they thought it probable that the Russians would attack them, and they even thought it likely that they would attack them in September, but they had no notion that the Soviet offensive would hit them in the month of August.

The Russians appear to have been pretty confident that they would in fact achieve surprise, and they took their decisions on echelonning on the assumption that they would. Whatever mode of deployment was adopted, the aim was to secure the maximum possible exploitation of the expected surprise. So it is perfectly understandable that, of the three *fronts* or army groups which took part in the campaign, two decided to deploy their armies in only a single echelon. These were the First and the Second Far Eastern Fronts. The third, which appears an exception, was the Transbaikal

Front; but in fact its two-echelon deployment was not so much of an exception as might appear.

There were no sizeable Japanese forces within about 400 kilometers of the Transbaikal Front's forming-up area. The principal difficulty that faced its main forces at the outset of the campaign was the broad belt of desert and mountainous country that separated them from the Central Manchurian Plain. Only when that obstacle had been surmounted could 6th Guards Tank Army come into contact with the principal Japanese forces centered upon Kwantung.

The task assigned to the main forces of Transbaikal Front, therefore, was to hurl themselves at top speed across the belt of desert and mountain, and smash into the westward-facing flank of the Japanese at the same time as the First Far Eastern Front smashed into their eastward-facing flank. But in an advance made by a group consisting of one tank army and four combined-arms armies, the tank army was bound to forge ahead unless it was ordered to reduce speed. No such order was given. On the contrary, General Kravchenko, GOC of 6th Guards Tank Army, was told expressly that it was the job of his formation to move forward as fast as it possibly could. The inevitable gap that would thereby be created between 6th Guards Tank Army's original neighbors to its left and right



would then be plugged by 53d Army, which thus became the Front's second echelon. It therefore seems reasonable to say that Transbaikal Front's adoption of a two-echelon formation was due to special circumstances.

So far as First Far Eastern Front was concerned, its task was to strike the initial blow with the maximum strength possible, in order to smash through the enemy's fortified positions at a single go. Having done that, it was then to exploit the breakthrough at the greatest speed and to the greatest extent possible. Given that the First Far Eastern Front was expected to achieve operational surprise, it seemed to the commander that a one-echelon deployment offered the best chance of success. This decision was approved by his superior, Marshal Vasilievsky, the commander-in-chief of all the Soviet forces engaged in the campaign.

The offensive launched by Second Far Eastern Front was a secondary operation. The *front* had only about half the number of men that had been allotted to the other *fronts*, and furthermore had a lot fewer tanks, guns, and supporting aircraft. Since it had no tank army and only three combined-arms armies (plus a few supporting units) which were to attack along a front of several hundred kilometers, a one-echelon formation was essential if its initial attack was to carry any weight at all.

The Manchurian Campaign of 1945 is the only example available of an attack launched by the Soviet armed forces at the start of a war which had been begun on *their* initiative; when the forces themselves were in good shape and had plenty of good equipment; and when, moreover, the Russians expected to achieve both strategic and operational surprise. Under such circumstances, a one-echelon formation was chosen for two of the *fronts* while the two-echelon formation adopted by the third *front* was the result, we have argued, of special circumstances which are not likely to recur in Central Europe at *front* level.

Lower down in the chain of command in Manchuria, there was no uniformity in the deployment of the corps and divisions. Thus, although First Far Eastern Front deployed all its armies in one echelon, many of those armies deployed their corps (and most of the corps deployed their divisions) in two echelons. This was because the commanders at those levels were confronted with tasks which, in essence, consisted of penetrating the Japanese first line of defense, and then going on and attacking and penetrating the second. In other words, they were faced with the classic requirement for a two-echelon formation; and a two-echelon formation was consequently adopted.

It should not be taken as evidence in rebuttal of this article's thesis that 6th Guards Tank Army, the flower

of the Soviet forces engaged in the campaign in Manchuria in 1945, deployed its corps into two echelons despite the fact that it expected to surprise the enemy and that it knew that Japanese opposition for the first 300 kilometers or so would be little more than feeble. The reason for the two-echelon formation was purely topographical; and as soon as 6th Guards Tank Army had crossed the Great Khingan range of mountains and had descended on to the level ground of the Central Manchurian Plain, 5th Guard Tank Corps, the army's second echelon on the first day of the offensive, was to move forward level with the remaining corps belonging to 6th Guards Tank Army. As a result, that army engaged the enemy's main forces in a single-echelon formation. Had General Kravchenko expected the Japanese on the far side of the Khingan Mountains to put up a prolonged and bitter resistance a la Stalingrad, he would no doubt have deployed his corps in two echelons. But he had come to believe that the resistance would not be of that order and that by a heavy initial blow he might hope to smash it. He deployed so as to deliver the heaviest possible initial weight of blow and the result proved him justified. It is not wholly ludicrous to suggest that a Soviet commander in Europe might make similar calculations, especially if, as has been assumed throughout, he might hope to achieve surprise over the NATO defenders.

On the other hand, the nature of the terrain in certain sectors of the NATO front makes it unlikely that all the Soviet armies would deploy all of their divisions in a one-echelon formation, too. Furthermore, the likely tasks confronting Soviet 8th Guards Army (launching holding attacks on the U.S. 7th Army in Bavaria, coupled with a thrust into Germany to the north of the American sector so as to prevent the Americans from moving northwards to take part in the main battle) might well impose a two-echelon formation upon the Soviet divisions there. At regimental and battalion level, it is most unlikely that anything other than a two-echelon formation would be adopted by the Russians anywhere.

Nevertheless, in the light of the above, one or two interesting trains of thought suggest themselves. If we assume that in our hypothetical attack the Soviet forces achieve surprise at both the strategic and the operational level, they will not only want to deliver the maximum initial weight of blow. They will also bear in mind that, by gaining surprise, they can more safely deploy into one echelon for the purpose of delivering the blow. Provided that the circumstances in Central Europe were approximately those assumed for the purpose of this article, it is reasonable to imagine that, at least at army level, a one-echelon formation is what the Russians would decide upon.



# A SOVIET VIEW

## A Tactical Airborne Landing



COLONEL Yu. CHERNYSHOV

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A motorized infantry subunit is generally chosen for a tactical airborne landing. It is airlifted by helicopters to the enemy rear where it carries out its combat mission in close cooperation with the forces advancing from the front. Thanks to the high level of their firepower and maneuverability, tactical airborne forces may be assigned the following missions:

- Capturing and holding important enemy installations (bridges, fords, passes), areas, sectors and bridgeheads located in the depth of the enemy defenses.
- Capturing and destroying powerful enemy weapons.
- Repulsing enemy counterattacks in cooperation with the subunits advancing from the front.
- Capturing and holding advantageous lines (areas, bridgeheads) to ensure the landing of amphibious forces and the advance of friendly troops along the seacoast.
- Capturing and destroying enemy control posts, electronic devices and logistic installations in order to disrupt his logistics.

To cope with its task the airborne force usually has to fulfill immediate and subsequent missions. The former consists of destroying the enemy, capturing and destroying specified installations and the latter in holding the captured objective until the arrival of the forces advancing from the front or delivering a blow in the direction of their advance and sometimes capturing a new objective (line).

The strength of an airborne force depends on the mission set to it, the situation taking shape and the landing equipment available. A motorized infantry battalion detailed to operate as an airborne force can be reinforced with one or two artillery batteries, an ATGM platoon and a sapper section. If the airborne force has to negotiate a water barrier, it should include two or three divers to reconnoiter the river bed, bridge pillars and other hydraulic structures.

The depth, area and time of landing the airborne force depends on its mission, the situation observed in the landing area, its strength, the senior commander's ability to support it and the airborne force's ability to operate independently till its linking up with the advancing forces. As was proved by the experience of the Great Patriotic War and exercises tactical airborne forces usually have to operate independently for several hours before they meet up with the main force coming from the front. However, the situation may sometimes require the airborne force to stay behind the enemy lines for several days.

The distance of the airborne force's departure area from the forward edge is determined by the situation and in the first place by the terrain conditions. This distance must ensure that the airborne force stay in the air for the shortest possible time. However, the departure area should be



located far enough from the forward edge for the helicopters to land unobserved and avoid being destroyed by artillery fire or tactical missiles.

Preparations for the landing begin with the appropriate operations order. They include: taking the decision to perform a landing, setting missions to the subunit commanders, organizing cooperation between the airborne force and the subunits advancing from the front, providing the personnel with all that is necessary, arrival in the departure area, organization of cooperation, troop control, boarding the helicopters and landing. Besides, the battalion commander jointly with the helicopter subunit commander specifies the manpower and combat equipment for each helicopter, designates helicopter sites and routes of advance to them, the order of boarding the helicopters and loading the weapons and combat equipment.



After the battalion commander has specified his combat mission and estimated the situation he takes a decision on the map. In his decision he specifies the concept of the operation (which enemy forces are to be destroyed and how, the objectives and areas to be captured or destroyed including the combat order to be assumed and maneuvers to be performed). He also sets missions to the subunits indicating procedures for cooperation and organizing troop control.

Having taken his decision the battalion commander gives a verbal order and organizes cooperation, combat security and support.

The operations order usually contains brief information on the enemy, the battalion combat mission, targets and objectives to be neutralized by the senior commanders' forces, combat missions set to the companies, artillery and other fire weapons to destroy and neutralize the enemy, and also the mission assigned to the reserve. Besides, every subunit is informed of the helicopter number, the departure area and the time at which the airborne force must arrive there and also the time of combat readiness.

Cooperation is established according to the missions to be performed



and also for the period of taking up positions in the departure area, boarding the helicopters and landing. In organizing cooperation the commander acquaints his subordinates with the missions set both to the forces advancing from the front and to the supporting aviation and artillery, specifies assembly areas and how to protect them against ground and air attacks, informs the airborne force of the order and methods of fulfilling its combat missions both independently and in cooperation with the forces advancing from the front, and also of target indication and warning signals.

In the case of night operations the battalion commander additionally specifies the rules for using illumination means and night vision devices, and indicates identification signs.

Practice shows that an airborne force should prepare for a landing in the shortest possible time. Therefore, simultaneously with organizing military operations the battalion commander and his staff must train the personnel in landing and airlifting their weapons and combat equipment.

The landing procedure includes helicopters' takeoff, flying and landing the airborne force in the enemy area. When in flight the airborne force is protected by the supporting aviation and artillery, the former providing protection in flight and in the landing area and the latter destroying enemy antiaircraft weapons from temporary positions located close to the forward edge.

The airborne force must be highly active and maneuverable in action, take the enemy by surprise, and show resolve and daring. Depending on the situation and the missions assigned the airborne forces can engage either in offensive or defensive encounters. After its landing in the enemy rear the airborne force generally assumes the offensive. Having seized the specified objective (line) it holds it till the arrival of the forces advancing from the front.





# TRAINING NOTES



## physical READINESS

MASTER SERGEANT RALPH E. RESCH JR.

In the Army's lexicon, physical fitness is not necessarily the same thing as physical readiness. You may say, "I'm physically fit and so is my 70-year-old grandmother; she's never been sick a day in her life." But it's unlikely that your grandmother is physically ready to carry out the Army's mission. And you may not be either. A lot of soldiers these days are not.

The Army's physical readiness has been weakening in recent years. This is partly because of the mechanization of our society in general. But it is also because of a lack of command emphasis on developing and maintaining a suitable level of physical readiness training and because of a lack of motivation on the part of the individual soldier.

Command emphasis refers not just to company or unit commanders but to all leaders of soldiers, whether they are in staff, hospital, administrative, combat, combat support, or combat service support units. When a leader disregards the physical readiness of his soldiers, he allows a weak link to develop in his unit's ability to perform its mission. The soldiers who make up this link then will

not have the capacity for sustained and skillful performance, the ability to recover quickly from exertion, the desire to complete a designated task, or the endurance and confidence to face difficult, demanding situations.

In an effort to correct these deficiencies, Field Manual 21-20 has been under revision for the past four years. When the new manual gets to the field, it should help to stimulate the command emphasis that is needed, which in turn will stimulate in the soldiers the motivation that is needed to turn their physical fitness (and their physical unfitness) into physical readiness.

During the revision period, various physical training programs were proposed, including a baseline program for initial entry training units, an MOS PT program, and a unit PT program. Other proposals involved the physical testing of individuals by MOS tasks and the formulation of progression tables and levels for all conditioning drills, circuits, activities, and sports.

The developers of the new FM took the best parts of these programs and, guided by a number of primary considerations, worked toward the

final product. These were the things they tried to do:

- Simplify and clarify instructions.
- Include drawings to support verbal explanations.
- Include physical readiness training for women without lowering the standards required for men.
- Include an individual exercise program for those who cannot participate in group training — office personnel, for example.
- Develop a single test for all soldiers that would require a minimum of facilities, equipment, and preparation.
- Develop test events that would measure upper body, abdominal, and lower body strength as well as aerobic endurance.
- Develop a PRT program for soldiers age 40 to 60.

We believe that these goals have been met with the new manual, now entitled Physical Readiness Training, which will soon be in the field.

The new manual no longer contains the physical training prerequisites for the Airborne, Ranger, and Special Forces courses. These are now outlined in DA Pamphlet 351-4, Formal

Schools Catalog, while other programs that were also previously in the manual, such as Run for Your Life, are being reviewed for possible dissemination through other publications.

A separate PRT program for soldiers 40 to 60 years of age is now in the validation phase and will be published later. (No physical readiness test will be administered to personnel 40 and over until announced by Headquarters, Department of the Army.)

The manual contains chapters on the concept of developing physical readiness; physical readiness leadership and instructor training; developing physical readiness training programs; drills and exercises; circuits,

running, guerrilla exercises, and relays; competitive activities; individual exercise activities; and basic physical skills and obstacle courses.

The test section has been moved to the end of the manual for quick reference, and a new APRT scorecard (DA Form 705) is included.

A major feature of the new manual is that it is in loose-leaf form, which means that whole pages can be replaced when changes are published. In the past, this has been a major problem for leaders and instructors who must use the manual in the field.

## THE TEST

The revised test will include only

three events — pushups, situps, and a two-mile run — events that require no special equipment or facilities. The emphasis on the first two events is on correct performance rather than on speed, as the following extracts will illustrate.

**Pushup:** The event supervisor reads the following instructions:

*The pushup event measures the strength of your shoulder-girdle muscles. On the command "get set," assume the front leaning rest position and place your hands where they are comfortable for you. The arms, back, buttocks, and legs must be straight from head to heels. This will be the start position. On my command "go," you are to begin your pushups by bending the elbows and lowering*

SCORE TABLES AGE 17-39

PUSHUPS					SITUPS					RUNNING TABLES				
REPS	17-25	26-30	31-35	36-39	REPS	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39
68	100				69	100				13:05	100			
67	98				68	98				13:12	99			
66	96	100			67	96	100			13:20	98			
65	94	98			66	94	98			13:27	97			
64	92	96			66	92	96	100		13:34	96			
63	90	94			64	90	94	98		13:40	95	100		
62	88	92			63	88	92	96	100	13:49	94	98		
61	86	90	100		62	86	90	94	98	13:56	93	96		
60	84	88	98	100	61	84	100	88	92	14:03	92	95		
59	82	86	96	98	60	82	98	86	90	14:10	91	94		
58	80	84	94	96	59	80	98	84	88	14:20	90	93	100	
57	78	82	92	94	58	78	94	82	86	14:25	89	92	98	
56	76	80	90	92	57	77	92	80	84	14:32	88	91	96	
55	75	78	88	90	56	76	90	78	82	14:39	87	90	94	
54	74	76	86	88	55	75	88	77	80	14:47	86	89	92	
53	73	75	84	86	54	74	87	76	78	14:57	85	88	91	
52	72	74	82	84	53	73	86	75	77	15:05	84	87	90	100
51	71	73	80	82	52	72	85	74	76	15:08	83	86	89	98
50	70	72	78	80	51	71	84	73	75	15:16	82	85	88	96
49	69	71	76	78	50	70	83	72	74	15:23	81	84	87	94
48	68	70	75	76	49	69	82	71	73	15:30	80	83	86	92
47	67	69	74	75	48	68	81	70	72	15:37	79	82	85	90
46	66	68	73	74	47	67	80	69	71	15:45	78	81	84	88
45	65	67	72	73	46	66	79	68	70	15:52	77	80	83	86
44	64	66	71	72	45	65	78	67	69	16:00	76	79	82	84
43	63	65	70	71	44	64	77	66	68	16:06	75	78	81	83
42	62	64	69	70	43	63	76	65	67	16:14	74	77	80	82
41	61	63	68	69	42	62	75	64	66	16:21	73	76	79	81
40	60	62	67	68	41	61	74	63	65	16:28	72	75	78	80
39	59	61	66	67	40	60	73	62	64	16:35	71	74	77	79
38	58	60	65	66	39	58	72	61	63	16:43	70	73	76	78
37	57	59	64	65	38	56	71	60	62	16:50	69	72	75	77
36	56	58	63	64	37	55	70	59	61	16:57	68	71	74	76
35	55	57	62	63	36	54	69	58	60	17:04	67	70	73	75
34	54	56	61	62	35	53	68	57	59	17:10	66	69	72	74
33	53	55	60	61	34	52	67	56	58	17:19	65	68	71	73
32	52	54	59	60	33	51	66	55	57	17:25	64	67	70	72
31	51	53	58	59	32	50	65	54	56	17:33	63	66	69	71
30	50	52	57	58	31	49	64	53	55	17:41	62	65	68	70
29	49	51	56	57	30	48	63	52	54	17:48	61	64	67	69
28	47	50	55	56	29	46	62	51	53	17:55	60	63	66	68
27	45	48	53	54	28	44	61	50	52	18:03	59	62	65	67
26	44	47	52	53	27	43	60	49	51	18:10	58	61	64	66
25	42	45	50	51	26	41	59	48	50	18:17	57	60	63	65
24	40	43	48	49	25	39	58	47	49	18:25	56	59	62	64
23	39	42	47	48	24	38	57	46	48	18:35	55	58	61	63
22	37	40	45	46	23	36	56	45	47	19:00	54	57	60	62
21	35	38	43	44	22	35	55	44	46	19:10	53	56	59	61
20	34	36	41	42	21	34	54	43	45	19:23	52	55	58	60
19	32	35	40	41	20	33	53	42	44	19:35	51	54	57	59
18	30	33	38	39	19	32	52	41	43	19:48	50	53	56	58
17	29	31	36	37	18	31	51	40	42	20:00	49	52	55	57
16	27	29	34	35	17	29	50	39	41	20:14	48	51	54	56
15	25	27	32	33	16	28	49	38	40	20:30	47	50	53	55
14	24	25	30	31	15	27	48	37	39	20:35	46	49	52	54
13	22	24	29	30	14	26	47	36	38	20:58	45	48	51	53
12	20	22	27	28	13	25	46	35	37	21:15	44	47	50	52
11	19	21	26	27	12	24	45	34	36	21:26	43	46	49	51
10	17	19	24	25	11	23	44	33	35	21:41	42	45	48	50
9	15	17	22	23	10	22	43	32	34	21:55	41	44	47	49
8	14	16	21	22	9	21	42	31	33	22:14	40	43	46	48
7	12	14	19	20	8	20	41	30	32	22:29	39	42	45	47
6	10	12	17	18	7	19	40	29	31	22:53	38	41	44	46
5	9	11	16	17	6	18	39	28	30	23:07	37	40	43	45
4	7	9	14	15	5	17	38	27	29	23:22	36	39	42	44
3	5	7	12	13	4	16	37	26	28	23:36	35	38	41	43
2	4	6	11	12	3	15	36	25	27	23:50	34	37	40	42
1	2	4	9	10	2	14	35	24	26	24:04	33	36	39	41
					1	13	34	23	25	24:19	32	35	38	40

## PART III.

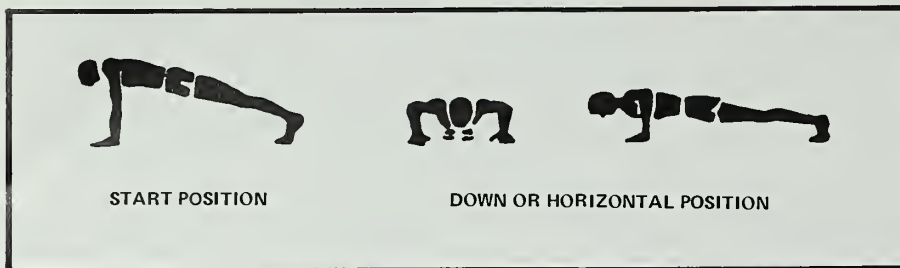
### 40 AND OLDER MINIMUM REQUIREMENTS

	40-45		46-50	
	TBA	TBA	TBA	TBA
PUSHUP	TBA	TBA	TBA	TBA
SITUP	TBA	TBA	TBA	TBA
2-MILE RUN	20:00	26:00	21:00	27:00
PUSHUP	TBA	TBA	TBA	TBA
SITUP	TBA	TBA	TBA	TBA
2-MILE RUN	22:00	28:00	23:00	29:00

NOTE:

INDICATES FEMALE TABLES





your entire body until the top of your upper arms, shoulders, and lower back are aligned and parallel to the ground. You will then return to the start position by locking your elbows. This is one repetition. At the end of each repetition, the scorer will count the number of repetitions you have performed correctly. You may rest at any time, but you cannot rest your body on the ground. If you do not keep your body straight, or if you fail to completely lock your elbows, that repetition will not count, and the scorer will repeat the number of your last correct repetition. Correct performance, and not speed, is important. You will have 2 minutes in which to do as many correct pushups as you can. Watch this demonstration. What are your questions on this event?

#### **Situp. Instructions:**

This situp event measures your abdominal muscle strength. On my command "get set," assume the start position by lying flat on your back with your knees bent at approxi-

body forward to the vertical position. The base of the neck must at least reach the vertical position. After you have reached the vertical position, lower your upper body to the ground until the upper portion of your back has touched the ground. Again, your arms and elbows need not touch the ground. This is one repetition. At the end of each repetition, the scorer will count the number of repetitions you have performed correctly. You may rest in the up or down position at any time, but if you lower your legs, fail to keep your fingers interlocked and behind your head, arch your back to raise your upper body forward, or do not attain the vertical position, that repetition will not count, and the scorer will repeat the number of your last correct repetition. Correct performance, and not speed, is important. You will have 2 minutes in which to do as many correct situps as you can. Watch this demonstration. What are your questions on this event?

#### **Two-mile run. Instructions:**



mately a 90-degree angle, and with feet flat on the ground with another individual holding your ankles on the ground with his hands only. No other method of bracing or holding the feet is authorized. Your fingers will be interlocked behind the head with the back of the hands touching the ground. Your arms and elbows need not touch the ground. On my command "go," begin raising the upper

The 2-mile run tests your ability to complete a prolonged run. You will be running individually. At the start, all soldiers will line up behind the starting line. Time will not begin until the last soldier crosses the starting line. When given the command "go," each soldier will begin running at his own pace. You will run the distance on (here describe the running area or the number of laps around the track.)

You will be scored on your ability to run the distance in the least possible time. The number on your chest is for identification. Make sure that the number is visible at all times. Turn in your number when you finish the run, and return to your equipment for the cool down period. Do not remain near the scorers or the finish line, as you may interfere with the scoring. What are your questions about this event?

The scoretable that accompanies this article applies to all soldiers from 17 to 39 years of age, regardless of rank, sex, or duty position. Soldiers who are just finishing basic training must earn a minimum of 160 points with at least 50 in each event. Soldiers finishing AIT, OST, and OSUT, and all other soldiers (officer and enlisted) must attain a minimum of 180 points with at least 60 in each event. The maximum number of points possible is 100 per event, or a total of 300 points for the APRT.

The materials in this new manual should make it easier for the commanders and leaders of various types of units to organize their physical readiness training and to provide programs that will give their soldiers the motivation they need to achieve and maintain their units at an appropriate level of physical readiness.



**MASTER SERGEANT RALPH E. RESCH, JR.,** is presently assigned as a project noncommissioned officer in the Infantry School's Directorate of Training Developments. He formerly served as senior instructor in the School's Airborne Department and as the chief instructor of the Department's conditioning and drill branch.

# BTMS

COLONEL R. F. SULLIVAN

BTMS stands for the Battalion Training Management System.

Another acronym! But this one will be around for a while, because BTMS has staying power.

BTMS provides a bridge between the old and the new Army training philosophies. Our old methods were often stereotyped, formal, 50-minute presentations with no hands-on participation by the soldiers. BTMS replaces this with an informal task-oriented (not time-oriented) method of presentation that is keyed to the Soldier's Manuals, and it calls for the direct participation of the soldiers. Moreover, BTMS is now being taught and used in both the Active Army and the Reserve Components.

An Army Training Board product, BTMS gives unit leaders at all levels the knowledge to effectively plan and train today's soldier using today's training tools. Its specific aims are:

- To develop better junior leaders.
- To use the available training time better.
- To improve the soldier's individual proficiency in his Soldier's Manual tasks, which will be tested by skill qualification tests.
- To improve every unit's ability to perform its collective tasks, which will be tested by ARTEPs.

BTMS also standardizes the Army's training methods and will help our leaders become better trainers and more proficient training evaluators. It consists of four workshops aimed at specific leaders within the chain of command, from squad leader to battalion commander. The trainer's workshop, for example,

lasts three days and is for the first-line supervisor, the squad leader. Its specific goals are to give the squad leader a BTMS overview, to emphasize performance-oriented training, to focus on the individual tasks in the 11B Soldier's Manuals, and to plan and use unscheduled training time to the best advantage.

Performance-oriented training, a key part of BTMS, is common to all four workshops. Thus, each workshop participant must plan, rehearse, and present a short but complete class. The student's class is graded "go" (pass) or "no go" (fail) by the class evaluator, just as the student will eventually rate the soldiers he will teach in his parent unit.

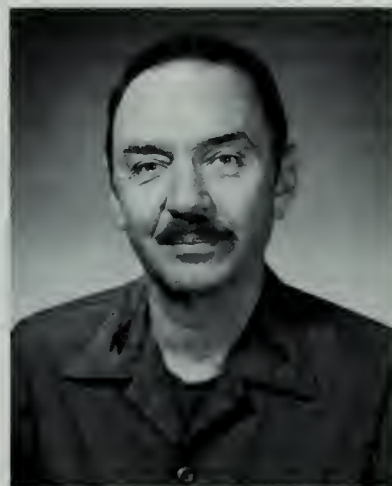
The essential elements in this presentation are the training statement (which Soldier's Manual task is being taught); safety precautions, if any, needed for the task; a pre-test (to keep the soldier from spending time on a task he can already perform); explaining why knowledge of this particular task is valuable to the soldier; and demonstrating and practicing the steps that make up the task. All performance-oriented training also includes a test of what the soldier has learned, assuming he scored a "no-go" on his pre-test.

At the end of the student presentation, the evaluator grades the presenter and records the results.

The full effect BTMS will have on the Army's training will not be known for some time. But it will certainly force officers and NCOs to become familiar with the Soldier's Manuals, and it will make battalion and com-

pany commanders look closely at their annual training requirements and priorities.

In addition, squad and section leaders will know how to conduct performance-oriented training and how to use their available training time better. In short, using the battalion training management system, we should see better unit training and increased readiness for the soldier and for his unit.



**COLONEL R. F. SULLIVAN** is the Inspector General of the Army's Computer Systems Command, Fort Belvoir. A former Adjutant General of the Infantry Center at Fort Benning, he has graduated from the Infantry Officer Basic Course and from the Command and General Staff College at Fort Leavenworth. He holds a PhD degree from California Western University, and is a 1954 graduate of the ROTC program at Texas A&M University.



# PAST TIMES

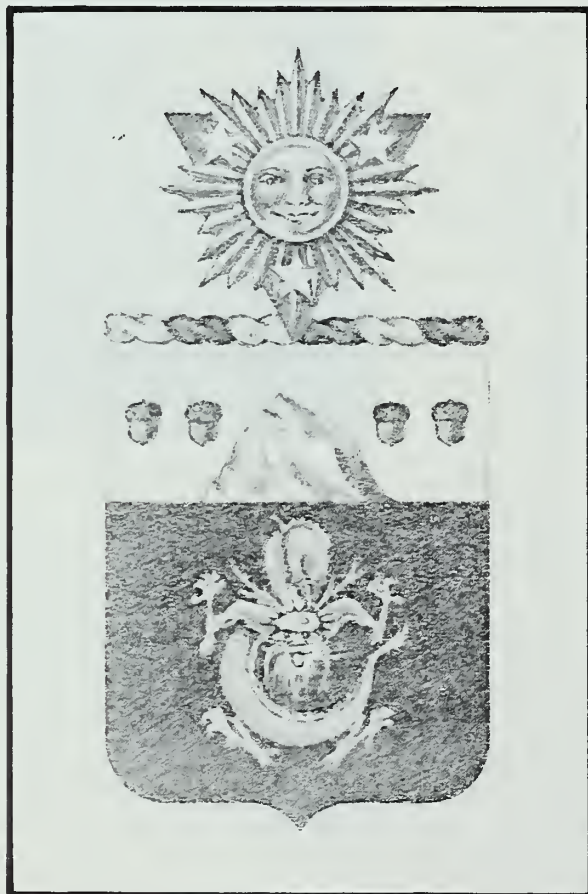


*EDITOR'S NOTE: During World War II, the Korean War, and the war in Vietnam, many United States Infantry units were cited in War Department or Department of the Army general orders for outstanding combat actions. We have decided to use our PAST TIMES section on occasion to recall some of those exploits by reprinting*

*the unit citations as they appeared in the general orders. All of the units we will mention are still on duty either with the Active Army or with one of the Reserve Components. In doing this, we hope to instill even greater pride in the Infantry not only in the present members of those units but in United States Infantrymen everywhere.*

The 3d Battalion, 15th Infantry Regiment, is cited for outstanding performance in combat during the period 3-8 August 1943 near San Fratello, Sicily. Scaling steep mountains and sheer rock walls, the 3d Battalion, commanded by Lieutenant Colonel Ashton H. Manhart, marched for 14 hours across deep gorges and over mountain trails so precipitous that mules bearing rations and ammunition were unable to negotiate the ascent and fell hundreds of feet to the ravine floor. Skirting two minefields, attacking, storming, and utterly disintegrating a powerful Italian delaying force in an 8-hour battle in

the mountains, the troops of the 3d Battalion continued their advance under a broiling sun to seize Hill 673, a dominating terrain feature guarding the Palermo-Messina Highway. The men of the 3d Battalion held this hill position on short rations, with water virtually unobtainable, ammunition supplies at a low ebb, and the mule pack trains subject to decimation by the powerful enemy force surrounding them. After weathering a 45-minute TOT-artillery concentration, these valiant soldiers met and broke three successive counterattacks delivered by one of the elite regiments of the Italian Army reinforced with Wehrmacht elements. As the fourth counterattack surged forward, the 3d Battalion Command hurled all service troops into the line and distributed the light machine-gun and BAR-ammunition among the riflemen to conserve every round and ensure that every bullet would count. The enemy onslaught was repelled, but only after 2 hours of savage, hand-to-hand fighting with grenades, bayonets, and even with rocks. The weary 3d Battalion clung all night to the hard-won hill, digging in the wounded to prevent their being killed by shell fire, trapping goats, sheep, and cows to stave off hunger. As daybreak came on 7 August, battle-weary elements of the 3d Battalion were committed to attack another precipitous and strongly defended hill-mass, which they stormed under a protecting mortar concentration and with weapons seized from the enemy. With the major prominent terrain features in their hand, the troops of the 3d Battalion swept down on the key town of San Fratello, spurred to their utmost by the prospect of obtaining food and water from the enemy supply dumps, captured it in fierce, house-to-house fighting, and then marched 16½ miles into reserve. Displaying the utmost in tenacity, fortitude, and physical endurance, this gallant 3d Battalion, 15th Infantry Regiment, shattered an enemy regiment, killed, wounded, or captured 1,175 Italians and Germans, and broke the chain of mountain defenses that barred the advance to the Messina straits and to the continental mainland in Europe. (War Department General Order 15, 5 February 1946.)



# ENLISTED CAREER NOTES

45

Enlisted Notes



## FROM THE BRANCH CHIEF

With this issue of INFANTRY we bid farewell to Sergeant Major Raymond J. Knippel, who will retire in February 1981 with 30 years of service. During the months I have been Branch Chief, Sergeant Major Knippel has provided advice and recommendations that helped me and our branch Professional Development NCO to accomplish our mission. We say thanks and wish him the very best in the future.

On a happier note, Sergeant First Class Edward Kinsley has joined the branch as the Professional Development NCO for the Special Forces and Ranger Section. Sergeant Kinsley is an Infantryman, and his previous assignments include tours of duty with the 1st, 3d, 5th and 7th Special Forces Groups in CONUS and overseas.

Our new Enlisted Assignment Advisor for the Drill Sergeant Section is Sergeant First Class Vale D. Short, who comes to us from Fort Richardson, Alaska.

One of our branch goals has been to improve attendance at advanced noncommissioned officer courses. On 5 October 1980 ANCOC class 1-81 began at Fort Benning, Georgia. There were 202 staff sergeants programmed to attend; 197 actually attended the course. This figure is an improvement over the enrollment records for classes held in FY 1980, but we must not be satisfied until all the seats for ANCOC are filled.

Empty seats in this course deprive our middle grade Infantry NCOs of a chance to improve their skills, and it results in a waste of training assets at Fort Benning.

The role of the branch is to schedule NCOs for a given course from the Department of the Army annual selection list. We accomplish

this by sending notification by message to the servicing MILPO and by letter to the selectees about four months before the class begins. Effective with ANCOC class 2-81 we will also send a letter to the battalion commander of each soldier scheduled to attend, informing him of his NCO's class date and asking him to assist the NCO in obtaining his TDY orders and in meeting other administrative requirements.

Through the combined efforts of soldier, commander, branch, and MILPO, we can fill all the seats in this course. Our branch point of contact is SFC Engle, AUTOVON 221-8058/9.

**LTC Robert J. Graham**

## RANGER VACANCIES

There are presently Ranger vacancies in the 1st Battalion (Ranger), 75th Infantry at Fort Stewart, Georgia, the 2nd Battalion (Ranger), Fort Lewis, Washington, and the Ranger Department, U.S. Army Infantry School, Fort Benning, Georgia. These vacancies are primarily for middle grade NCOs in the following ranks and MOSs: MSG/1SG 11B; SFC/1SG 13F, 76Y; SSG 11B, 13F, 76Y, 94B; SGT/SP5 13F, 31V, 75B, 91B, 94B; CPL/SP4 and below 11B, 31V.

To apply, a soldier must be Ranger qualified and must submit a DA Form 4187 requesting assignment to the unit of his choice. Applications or volunteer statements must be forwarded through command channels to DA, MILPERCEN, ATTN: DAPC-EPK-S, 2461 Eisenhower Avenue, Alexandria, VA 22332. Branch point of contact is SFC Kinsley, AUTOVON 221-8340.

See AR 614-200 and DA Pamphlet 351-4 for additional information.

## RE-UP OPTION EXTENDED

All career stateside soldiers with 14 years of service or less will be eligible for the CONUS-to-CONUS station-of-choice reenlistment option under an extension of the present program.

Until now only first-term soldiers were eligible to reenlist for a guaranteed 12-month assignment at another CONUS post under the option.

This expanded program, which initially will be limited to choices for Fort Ord, Fort Carson, and Fort Stewart, went into effect on 1 November 1980.

## TOP DRILL SERGEANT

Sergeant First Class James S. Clauson, Jr., has been selected as the Army's best drill sergeant for his accomplishments while assigned as Drill Sergeant Instructor and Senior Drill Sergeant, U.S. Army Reception Station, Fort Jackson, South Carolina, in 1979-1980.

Clauson received the Stephen Ailes Drill Sergeant of the Year Award and was cited for his efforts in training recruits and junior drill sergeants. He was instrumental in establishing a noncommissioned officer development program for junior drill sergeants and a learning center for all soldiers, and for improving skill training at Fort Jackson.

A 14-year Army veteran now assigned to Headquarters, U.S. Army Training and Doctrine Command, Fort Monroe, Virginia, Sergeant Clauson says that his formula for success is to "totally dedicate yourself to the job and constantly seek self improvement."



**INFANTRY BRANCH — ENLISTED COMBAT ARMS DIVISION  
(DAPC-EPK-I)  
TELEPHONE DIRECTORY**

DESK	NAME	AUTOVON	COMMERCIAL (AREA CODE 202)
Branch Chief	LTC Robert J. Graham	221-8055	325-8055
Branch Sergeant Major	SGM Raymond Knippel	221-8071	325-8071
Senior Career Advisor	SFC Jerry L. Rock	221-8056	325-8056
Assignment Chief	Shirley Hodge	221-8056	325-8056
<b>E7-E8 11B, E6-E7 11C, 11H TEAM</b>			
Assignment Team Chief	Maggie Smith	221-8057	325-8057
E8 Career Advisor	SFC Larry Bergquist	221-8057	325-8057
Assignment Manager, E8 11B CONUS	Marianne Kelly	221-8057	325-8057
Assignment Manager, E8 11B Overseas	D. Wayne Giles	221-8058	325-8058
E7 Career Advisor	SFC Macon Sims	221-8058	325-8058
Assignment Manager, E7 11B CONUS	Jerry Brown	221-8058	325-8058
Assignment Manager, E7 11B Overseas	D. Wayne Giles	221-8058	325-8058
E6-E7 11C, 11H Career Advisor	SFC Roger Miller	221-8057	325-8057
Assignment Manager	Elizabeth Fenimore	221-8057	325-8057
<b>E6 TEAM</b>			
E6 Career Advisor	SFC William Riggins	221-8058	325-8058
E6 Assignment Chief	Monica Corcoran	221-8058	325-8058
Assignment Manager, CONUS (A-L)	Debbie Cortese	221-8058	325-8058
Assignment Manager, CONUS (M-Z)	Lenore Christenson	221-8058	325-8058
Assignment Manager, Overseas (A-L)	Gwen Heath	221-8058	325-8058
Assignment Manager, Overseas (M-Z)	Joann Filakousky	221-8058	325-8058
<b>E1-E5 TEAM</b>			
E1-E5 Career Advisor	SFC Roger Miller	221-8057	325-8057
E1-E5 Team Chief	Jane Jones	221-8057	325-8057
Assignment Manager, CONUS (A-K)	Vicki Shave	221-8057	325-8057
Assignment Manager, CONUS (L-Z)	Rosie Plummer	221-8057	325-8057
Assignment Manager, Overseas E1-4 11B, 11C	Robert Davis	221-8057	325-8057
Assignment Manager, Overseas E5 11B-11C, E1-5 11H	Carver Poindexter	221-8057	325-8057
<b>SPECIAL FORCES/RANGERS</b>			
Career Advisors	SFC Edward Kinsley	221-8340	325-8340
Assignment Team Chief	Patricia Hall	221-9568	325-9568
Special Forces Assignments	Theresa Palmer	221-9429	325-9429
Special Forces Assignments	Barbara Jackson	221-9429	325-9429
Ranger Assignments	Barbara Dansby	221-9429	325-9429
<b>SCHOOL SECTION</b>			
Sergeants Major Academy	Julie Miley	221-8057	325-8057
ANCOES	SFC Michael Engle	221-8058	325-8058
ANCOES	Elizabeth Alexander	221-8058	325-8058

The award is named in honor of a former Secretary of the Army who was instrumental in starting the Army's Drill Sergeant Program in 1964.

## **DRILL SERGEANT STABILIZATION**

Any drill sergeant who wants to extend his tour of duty to 36 months must initiate a request in accordance with Paragraph 8-19(d), AR 614-200, and his application must arrive at the Infantry Branch before the 19th month of his initial 24-month stabilization period. The request must be

forwarded through command channels. Only applications that receive favorable recommendations from the soldier's chain of command will be forwarded to Commander, MILPERCEN, ATTN: DAPC-EPK-I.

The commander of MILPERCEN will identify the soldiers who are not

to be extended and will transfer their records to the appropriate career branch for assignment consideration. Once assignment instructions have been issued, extension of drill sergeant duty will be granted only for qualified hardship cases.

## ANCOC CLASSES

The following information is provided for Infantry ANCOES students who are scheduled to attend Advanced Noncommissioned Officer Course classes during the remainder of FY 1981:

CLASS NO.	REPORT	CLOSE
2-81	1 Feb 81	14 Apr 81
3-81	19 Apr 81	24 Jun 81
4-81	26 Jul 81	2 Oct 81

## SRB FOR CMF 11

Selective reenlistment bonuses are categorized as Zone A, B, or C. The following table shows which soldiers are eligible for each zone:

Zone A SRB — Soldiers with between 21 months and 6 years of active federal service.

Zone B SRB — Soldiers with between 6 and 10 years of active federal service.

Zone C SRB — Soldiers with between 10 and 14 years of active federal service.

An SRB multiplier is added to each zone to express the amount of bonus to be paid. The formula used is: Multiplier (1 through 6) times amount of base pay times number of additional years of obligated service.

Effective 1 October 1980 the following Infantry MOSs were added to

the SRB program at the zone and multiplier indicated.

MOS	TITLE	MULTIPLIER
11B	Infantryman	SRB1A/SRB1B
11C	Indirect Fire Infantryman	SRB1A/SRB1B
11H	Heavy Antiarmor Weapons Crewman	SRB1A

Chapter 9, AR 600-200, AR 601-280, and DA Circular 611-73 (15 August 1979, announcement of Propay/SRB/EB/Comparable MOS for bonus recipients) applies.

## CLUB MANAGERS NEEDED

The Military Personnel Center is seeking applications from enlisted personnel to fill openings in the club management career program.

To qualify, applications must be in the ranks of SGT/SP5 to SFC/PSG with less than 16 years of service.

Successful applicants will attend the club management school to learn club administration and management of food, beverage, and entertainment programs. Graduates will be assigned to club management positions with military occupational specialty 00J, club manager.

## OFFICER PROCUREMENT SEMINAR

It is often difficult for enlisted soldiers to obtain information about the Army's various commissioning and appointment programs. In an attempt to overcome this problem the Military District of Washington's Personnel Actions Branch conducts an officer procurement seminar.

The seminar is designed to assist soldiers in applying for the Branch Immaterial Officer Candidate Course, warrant officer direct ap-

pointment, and the U.S. Military Academy Preparatory School. Information is also made available for soldiers who are interested in the active duty ROTC scholarship program.

Application packets containing information letters, fact sheets, and blank forms are provided to each person who attends.

For more information on establishing an officer procurement seminar, contact SP4 Garrett or SFC Dennis, MDW Personnel Actions Branch, AUTOVON 223-0228 or (202) 693-0228.

## ITV TRAINER COURSE

Since August 1979 all soldiers in MOS 11H, in the ranks of PV2 to PSG/SFC (with the exception of AIT) on orders to Europe have been scheduled to attend, TDY enroute, the Improved Tow Vehicle Trainer Course at Fort Benning. This program will continue through FY 1981.

If you are an 11H on assignment instructions to Germany, your PCS orders should include special instructions for attending this course. If they do not, you should contact your local MILPO through your chain of command for clarification.

ITV class dates for FY 1981 are:

CLASS NO.	REPORT	CLOSE
5	8 Mar 81	27 Mar 81
6	12 Apr 81	1 May 81
7	10 May 81	1 Jun 81
8	7 Jun 81	26 Jun 81
9	12 Jul 81	31 Jul 81
10	16 Aug 81	4 Sep 81
11	21 Sep 81	9 Oct 81

The Branch point of contact for information is SFC Miller, AUTOVON 221-8057.





# OFFICERS CAREER NOTES



## SECTION CHIEF NOTES

Recently the Infantry Management Section mailed ORBs and performance fiche to the Infantry captains who will be considered for promotion to major, AUS, by the 1981 selection board. The ORBs, which are from the March-April time period, should be checked carefully because they are the documents that the selection board will review. Each officer should carefully check these records to see that the data is current and that it meets the guidelines of Appendix 1, AR 600-9.

The reorganization of the OPMD is almost complete; the lieutenant colonels' assignment officers will become a part of the Infantry Management Section at the end of February 1981. This means that from then on all Infantry officers from second lieutenants through lieutenant colonels will be assigned from this office.

One problem we're experiencing from the reorganization is the heavy use of all telephone lines. We have asked for four additional lines to improve our service to Infantrymen. Once this gets sorted out, we will publish a new telephone directory in INFANTRY magazine.

The majors' assignment officers receive many inquiries as to what an Infantryman must do as a major. Basically, there are three things:

- Complete CGSC-level schooling, either as a resident or as a non-resident.
- Serve with troops in either a TDA or a TOE environment.
- Serve in his second specialty.

This last item is very important. If possible, each officer should prepare himself for duty in his second specialty by enrolling in correspondence

or off-duty courses, and by requesting additional schools that support his specialty. We'll try our best to schedule schools between PCSs. Anyone who is serving at an installation in SC 11 and has an opportunity to serve in his second specialty should go after it.

On 4 April 1980, the Chief of Staff of the Army approved a new Command and Staff College Selection System, which changes the years of eligibility for selection to the eighth through eleventh years of service (YOS). The system that was in effect through academic year 1980-81 specified eligibility as captain (promotable) through 15 YOS.

Under the new system, an officer who is selected for CSC attendance will be scheduled to attend in his ninth through fourteenth years of service. DOD Directive 1315.7 states that an officer will not be moved to attend professional development schools before he completes 36 months on station or completes a normal overseas tour. As a result, the actual year he attends will depend on when he meets the mandated stability criterion.

Competition for CSC seats will be by year group. One year's worth of CSC seats (about 940) will be allocated to each year group to be filled over the four years of eligibility. Seats will be allocated to year groups by YOS: 15 percent for 8 YOS; 15 percent for 9 YOS; 35 percent for 10 YOS; 35 percent for 11 YOS.

The transition from the present system to the four-year CSC selection system will begin with academic year 1981-82, and implementation will be complete by academic year 1984-85. The transition plan has a "grandfather clause," which will give officers who are in their twelfth to

fifteenth years of service additional CSC opportunities through academic year 1983-84.

Announcement to the field of the CSC selectees will be handled by prepositioned list just as the promotion lists are now being done. The list will specify the school an officer is to attend or, in the case of a deferred officer, the academic year in which he will attend.

**LTC(P) GERALD K. GRIFFIN**

## COMPTROLLER (SC45)

The comptroller specialty (Specialty Code 45) is an advanced entry specialty that is designed to develop commissioned officers in matters pertaining to directing and controlling the financial and resource management activities of the Army. Participants can expect assignments to positions throughout the Department of Defense and the Department of the Army. Opportunities exist at all levels of command from installation to the highest levels to assume a responsible role in the business of military financial management.

Normally, an officer is designated Specialty 45 during his eighth year of service. The process involves matching individual preferences with Army needs. In the past, most preferences have been filled. As with other specialties, the opportunity to be designated in it can come as a result of some particular event or special training — such as completion of graduate school. DA Pamphlet 600-3 gives a more detailed discussion of this important process.

The advancement of all Army officers is predicated upon their demonstrated performance and their poten-

tial. There are various staff positions for the comptroller specialist in all grades from captain through colonel, as well as general officer positions, at major command and Department of the Army level. These positions include comptrollers, resource managers, budget officers, and management analysts.

Financial management training takes place at selected military and civilian institutions. Primarily, the training is accomplished at the Administration Center at Fort Benjamin Harrison, Indiana, where typical courses include the Military Comptroller Course, the Planning, Programming and Budgeting Course, and the Advanced Comptroller Symposium. The Professional Military Comptroller Course, taught at Maxwell Air Force Base, Alabama, is aimed at the executive level. Other key courses are taught at the Army Logistics Center, Fort Lee, Virginia.

Within the scope of the Army's comptrollership program, there are opportunities for selected officers to earn advanced degrees in comptrollership at Syracuse University, the Naval Postgraduate School, or other institutions. In addition, numerous advanced management programs are available for colonels who occupy validated billets, and the Advanced Resource Management Course, taught by Syracuse University, is available for majors and lieutenant colonels who occupy key positions.

An officer entering the comptroller specialty will normally be assigned to an installation first. This assignment will probably be as a budget analyst where the fundamentals of financial management are most appropriately developed. Other opportunities that will broaden the officer's professional development are as management or program analysts. Increasing levels of responsibility can be found at intermediate command, major command, and DA level staff positions. These positions also encompass the comptroller or resource manager positions.

The following are some typical SC 45 assignments:

#### **Captains:**

- Instructor, U.S. Army Logistics Management Center, Fort Lee, Virginia.

- Program Budget Officer, Project Manager.

- Management Analyst, SETAF (Italy).

#### **Majors:**

- Comptroller, USAG, Carlisle Barracks, Pennsylvania.

- Instructor, CGSC, Fort Leavenworth, Kansas.

- Management Staff Officer, Headquarters, FORSCOM.

#### **Lieutenant Colonels:**

- Comptroller, U.S. Army Depot.

- Budget Analyst, DCSRM, Headquarters, USAREUR.

- Management Officer, ARNG, Hawaii.

#### **Colonels:**

- Comptroller, Fort Knox, Kentucky.

- Director, Finance Systems, U.S. Army War College.

- Comptroller, VII Corps-USAREUR.

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### **ASSIGNMENT POLICY CHANGE**

In a major policy change, which became effective 1 December 1980, commanders and supervisors will be given an expanded role in informing their subordinate officers of forthcoming reassignments.

MILPERCEN action officers recommended the change in procedure after tests that were conducted between February and May 1980 in units at Forts Riley, Benning, and Meade.

The new procedure will apply to all warrant officers and commissioned officers through the rank of major. Initially, only officers who are assigned in the continental United States (CONUS) will be involved. Plans to include overseas units are scheduled for implementation in July 1981.

Coordination of assignment information such as location, specialty, and reporting date will take place be-

tween the officer, his commander or supervisor, and his MILPERCEN assignment officer.

Under the present system, the assignment officer calls the officer at his home or unit to alert him to a proposed move. Having this information given to him by his commander or supervisor will give an officer the opportunity to discuss the assignment first with someone other than his assignment officer. In addition, the senior officer will be immediately aware that he may lose a subordinate officer.

The assignment officers will call a designated point of contact at each post or installation — usually within the G1 office of the Directorate for Personnel and Community Activities (DPCA) — and inform that person of the officers who are scheduled for PSC moves. The POC will be given the name of each officer, his social security number, the date being considered, the utilization specialty, the location, and the name and telephone number of the assignment officer involved.

This information will be provided to the appropriate commander or supervisor for his use in making the announcement to the officer concerned. If the commander or supervisor elects to do so, he may call the assignment officer before, during or after the counseling period for further information. He is expected to make the announcement to the officer within three working days of the date on which the alert notification is made to the post or installation.

The assignment officer will be prepared to discuss with the commander or supervisor, or with the officer, the rationale for the assignment, the officer's professional development requirements, and the needs of the Army. The officer's performance information will not be made available to his commander or supervisor unless he gives his approval to release that information.

If the assignment officer doesn't hear from either the commander or supervisor or from the officer within three days, he will prepare a request



for orders and complete the assignment process.

## OFFICER TRAINING SURVEY

The Army is surveying the duty positions of company and field grade officers and warrant officers in all specialties as an outgrowth of its review of education and training for officers (RETO). The purpose of the survey, being conducted by the Training and Doctrine Command through the Army schools, is to analyze the job tasks performed and to determine the skills the officers need.

After completing the survey, the Army schools will design a training program and develop training materials for each officer specialty. School courses will be revised as necessary. Survey results will also be used to revise the Combined Arms and Services Staff School course.

Changes resulting from the survey should be instituted by the end of fiscal year 1984.

## COMBINED ARMS ADVANCED COURSES

In the future more combined arms officers will be scheduled to attend branch advanced courses other than their own. MILPERCEN's goal is to have a total of 233 officers attend either the Infantry, Field Artillery, Armor, Engineer, or Air Defense Advanced Course instead of their own basic branch advanced course.

The breakdown of numbers to be scheduled is shown here:

ADVANCED COURSE	OFFICERS BY BRANCH (PER CLASS)					TOTAL PER YEAR
	IN	AR	FA	ADA	EN	
Infantry (5 classes/year)	—	10	5	3	1	95
Armor (4 classes/year)	15	—	2	1	1	76
Field Artillery (4 classes/year)	6	3	—	1	0	40
Air Defense (4 classes/year)	1	1	1	—	0	12
Engineer (5 classes/year)	1	1	0	0	—	10
TOTAL						233

In addition, the assignment of Signal Corps officers to combat arms advanced courses will be accomplished this fiscal year on a limited basis to study the feasibility of including them in the plan.

TRADOC has concurred in our distribution program and is taking the necessary steps to incorporate it into DA Pamphlet 351-4, U.S. Army Formal Schools Catalog.

Assignment personnel are now working on selecting officers for these classes. The initial input will not achieve our goal in every case, because the first two classes of each branch school have already been programmed, but later classes will reflect the results of these efforts.

This action is expected to have a significant effect on junior officers over the next few years and should improve the professionalism of the combat arms team.

## DA SELECTION BOARDS

The method used to select members of the Lieutenant Colonel Level Command Selection Board, beginning with the board that convened in November, is a significant departure from previous practice.

Major commanders are now being given the opportunity to participate in the selection of DA board members from their commands using a list of qualified nominees prepared by MILPERCEN. Major commanders are responsible for notifying MILPERCEN and appointed board members of their selections for board membership.

Under the previous system, major commanders were not aware that their officers had been selected for DA board membership until after the Deputy Chief of Staff for Personnel, DA, had approved the board slate. Nominations for board membership were provided to the DCSPER by MILPERCEN with no major command coordination.

The DA DCSPER decided in December 1979 to delegate to the nominating agencies (MILPERCEN,

the Surgeon General, the Chief of Chaplains, and the Judge Advocate General) the authority to prepare command notification letters and approve requests to excuse or replace nominees. MILPERCEN officials then revised and decentralized the board selection procedures to give major commanders a more effective voice in selecting specific nominees.

The changes reflect three goals:

- To encourage MACOM involvement in the nomination of board members.
- To reduce the number of last-minute changes to board membership.
- To make sure that officers with distinguished records are available to serve on selection boards.

This new procedure is not meant to affect the objective nature of these boards by allowing subjective MACOM interest to be introduced into the selection of board members. It is simply a way of recognizing the effect that the selection of board members has on the mission requirements of major commands.

These changes in selection procedure apply only to the officers who are managed by MILPERCEN. The Offices of the Secretary of Defense, the Joint Chiefs of Staff, and the Army Staff will still provide board members as required, and MILPERCEN will still make specific by-name nominations on occasions when a particular board position calls for an officer with particular qualifications.



# BOOK REVIEWS



It is good to see that the Battery Press of Nashville, Tennessee, is continuing to reprint World War II unit histories. Many of these were first published in the late 1940s and early 1950s and have long been out of print. Its three latest reprint offerings are: **DANGER FORWARD: THE STORY OF THE FIRST DIVISION IN WORLD WAR II**, by H. R. Knickerbocker, *et. al.* (Originally published in 1947. Reprint Edition, 1980. 479 Pages. \$25.00); **WORKHORSE OF THE WESTERN FRONT: THE STORY OF THE 30TH INFANTRY DIVISION**, by Robert L. Hewitt (Originally published in 1946. Reprint edition, 1980. 404 Pages. \$25.00); and **CONQUER: THE STORY OF NINTH ARMY, 1944-1945** (Originally published in 1947. Reprint edition, 1980. 406 Pages. \$22.50).

In addition, the Press has recently brought forth its first new publication and the 11th release in its airborne series: **SKYRIDERS: HISTORY OF THE 327/401 GLIDER INFANTRY**, by James L. McDonough and Richard S. Gardner (1980. 176 Pages. \$20.00).

The 327th and 401st Glider Infantry Regiments were formed in August 1942 when the 101st Airborne Division was activated. After training in the United States, the units were shipped overseas to England to prepare for the invasion of France. While in England, the regiments were consolidated after the structure of the glider infantry units was changed.

The 327/401 entered combat in Normandy and followed this with the airborne assault in Holland. It was at Bastogne during the Battle of the Bulge, and it ended the war as an occupation unit in southern Germany. The author's use of numerous photographs supplement a good, concise narrative.

The TIME-LIFE World War II effort also continues to produce outstanding volumes. The three latest volumes that we have received are: **THE NAZIS**, by Robert Edwin Herzstein and the Editors of Time-Life Books (1980. 208 Pages. \$10.95); **WAR UNDER THE PACIFIC**, by Keith Wheeler and the Editors of Time-Life Books (1980. 208 Pages. \$12.95); and **ACROSS THE RHINE**, by Franklin M. Davis, Junior, and the Editors of Time-Life Books (1980. 208 Pages. \$12.95). It is interesting to note that Franklin Davis is a retired Army major general who, as a major, served with a tank unit during the crossing of the Rhine River in 1945.

Among the numerous other World War II books that have been recently published, we would like you to know about these:

- **BLITZKRIEG: FROM THE RISE OF HITLER TO THE FALL OF DUNKIRK**, by Len Deighton (A. A. Knopf, 1980. 296 Pages. \$14.95). Deighton turns from the 1940 war-torn skies over England to trace the development and the almost flawless execution of blitzkrieg tactics by Germany's World War II tank commanders against the French and British armies of 1940, which were simply not equipped, either mentally or physically, to stop them.

- **BRITISH INTELLIGENCE IN THE SECOND WORLD WAR: Volume One**, by F. H. Hinsley, with E. E. Thomas, C. F. G. Ransom, and R. C. Knight (Cambridge University Press, 1979. 601 Pages. \$24.95). A well-done official history, which, after two introductory chapters, tells the story of the British intelligence establishment and its influence on the development of Britain's strategy and operations from the outbreak of hostilities in September 1939 to the German inva-

sion of Russia in June 1941.

- **THE HISTORICAL ENCYCLOPEDIA OF WORLD WAR II**, edited by Marcel Baudot, *et. al.* (Facts on File, 1980. 551 Pages. \$24.95). Originally published in France under the title *Encyclopedia de la Guerre*, 1939-1945, it has been translated by Jesse Dilson and produced by Facts on File with certain added material (particularly on Far East matters) by Alvin D. Coox and Thomas R. H. Havens. It is similar to yet different from other recently published World War II encyclopedias — by Rand McNally in 1977 and Simon and Schuster in 1978, for example — with long entries on such subjects as health, the Imperial Rule Assistance Association (IRAA), and independence movements. These are entries the other encyclopedias do not have. It does, though, have the usual entries on the war's battles and leaders, and on much of the equipment that was used by the opposing forces.

- **GERMAN PARATROOPS IN WORLD WAR II**, by Volkmar Kuhn (Hippocrene Books, 1980. 240 Pages. \$17.50). This book, first published in Germany in 1974, does for the German World War II airborne soldier what recently published books in this country have done for the American and British airborne soldier. Numerous photographs and personal accounts enliven the narrative, which is basically a factual, somewhat dry account of the various operations the German airborne soldiers participated in during six years of war.

- **2194 DAYS OF WAR**, compiled by Cesare Salmaggi and Alfredo Pal-lavisini (Mayflower Books, 1979. 754 Pages. \$29.95). Over 600 illustrations and 80 maps make this volume an illustrated chronology of the war, easy to follow but not as detailed as



some might like it to be.

• **1940: THE LAST ACT**, by Basil Karslake (Shoe String Press, 1979. 283 Pages. \$25.00). Karslake tells the story of what happened to the nearly 200,000 British soldiers who were still in France after the evacuation of the other British troops from Dunkirk had been completed. It is not a pretty story, marked as it was with poor planning, the absence of any sort of unified command, and a lack of experienced combat commanders.

• **ONE MORE RIVER: THE RHINE CROSSINGS OF 1945**, by Peter Allen (Charles Scribner's Sons, 1980. 320 Pages. \$16.95). The author tells of the Allied operations in northwest Europe from the crossing of the Roer River in February 1945 to the crossing of the Rhine River the following month. Most of his narrative is devoted to the operations of the British and Canadian units, which is just as well for he seems far more at home with them. His account of U.S. operations is marred by several bad mistakes, and these do detract from his overall story.

• **BATTLE FOR BURMA**, by E. D. Smith (Holmes and Meier, 1979. 192 Pages). Smith, a retired Brigadier in the British Army, served for many years in Southeast Asia, and in this volume brings both his personal knowledge and his writing skills to bear on a campaign that is still relatively unknown to many American readers. His is an excellent, concise account of a difficult campaign, and his descriptions of the various commanders and well-known personalities alone are worth your closest attention.

• **THE CHINDIT WAR: STILLWELL, WINGATE, AND THE CAMPAIGN IN BURMA, 1944**, by Shelford Bidwell, (Macmillan Publishing Company, 1979. 304 Pages. \$13.95). Bidwell is also a retired Brigadier in the British Army, and in this book, his sixth, he recounts in detail the activities and personalities of those engaged in one of the most unusual events of World War II—the so-called Chindit campaign of 1944, the brain-child of the British general,

Orde C. Wingate. There is no better history of this ill-starred operation.

Now, here are a number of our longer reviews:

**THE RUSSIAN VERSION OF THE SECOND WORLD WAR**, edited by Graham Lyons (The Shoe String Press, 1976. 142 Pages. \$10.00). Reviewed by Lieutenant Colonel Jerry M. Sollinger, 101st Airborne Division (Air Assault).

QUESTION: Who preserved mankind from annihilation or enslavement by defeating Hitler's Germany?

QUESTION: Who fought World War II to preserve freedom, independence, and democracy worldwide?

If your answer to either question was the United States, you just failed history—in Russia. Plutarch held that it was very difficult to discover the truth of anything, especially by history, and Graham Lyons illustrates the soundness of that judgment.

Working from two Russian schoolbooks, Lyons has compiled a thumbnail history of World War II as seen from Moscow. Predictably, this version departs significantly from traditional Western accounts. According to it, the Russians signed the non-aggression pact with Germany only because Britain, France, and the United States refused to bargain in good faith with Russia. They entered Poland simply to stop the advance of the German armies towards Russia, and their attack on Finland resulted from unwarranted attacks and provocations by the Finns.

The worth of the book, though, lies not in its "truth" or lack of it, but in what it tells the reader about Russian perceptions. While simplistic and slogan-ridden, it provides a valuable insight into the Russian view of the West's participation in World War II. And understanding the Russians' view of history does much to explain their present attitudes.

Given the fact that the Russians have had their perceptions shaped and colored by such accounts, they

evinced an understandable caution, not to say suspicion, towards the West. Trying to deal with or understand the Russians without knowing the historical premises from which they operate is like trying to play chess without knowing the rules.

Any professional officer would do well to spend the hour or so it will take him to read this book.

**THE NAZI CONNECTION**, by F. W. Winterbotham (Harper and Row, 1978. 222 Pages. \$8.95). Reviewed by A. W. McMaster III, Headquarters TRADOC.

Brigadier Winterbotham's book actually predates his celebrated account of "The Ultra Secret." Much as the story of German code-breaking was of interest and value to the political-military enthusiast, this story is just as important. It serves as a superb history of the Nazi effort during the 1930s to neutralize or even take over Great Britain while planning to conquer Europe and crush communist Russia.

It is full of insights into the personalities of the top Nazi leaders, whom the author met in the guise of a Nazi sympathizer. The Germans' desire to win over British support for their anti-communist ideology permitted Winterbotham repeated access to Hitler, Hess, and the ideologist Rosenberg, who befriended him.

Repeatedly Winterbotham tried to convince Britain's political leaders that the Versailles Treaty was dead, that Germany was rearming at an incredible rate, and that war was coming to Europe. He was ignored each time. And because of their obstinacy and lack of moral courage, Britain's leaders found themselves unprepared for Hitler's war machine.

When war could no longer be denied in Britain, and his true role as a British agent was recognized in Germany, Winterbotham turned his talents to creating and promoting what was then called "high altitude" photo reconnaissance. This program was fully developed by the autumn of

1939, and was then fully staffed by the Air Ministry. At that point, Winterbotham was brought into the code-breaking project that was later to be described as Ultra.

This is a fascinating book, one that the professional military reader should enjoy.

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**MODERN SOVIET ARMOR: COMBAT VEHICLES OF THE USSR AND WARSAW PACT TODAY**, by Steven J. Zaloga (Prentice-Hall, 1979. 88 Pages. \$14.95).

This book contains a detailed discussion, supported by numerous photographs and drawings, of Soviet combat vehicles, reconnaissance and tank destroyer vehicles, and mechanized artillery and air defense vehicles. The author traces the historical development of each vehicle and offers comparisons, where they are warranted, between Soviet and NATO vehicles.

Zaloga's is one of the better reference books of its kind on the market today.

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**BATTLE OF BRITAIN: THE HARDEST DAY, 18 AUGUST 1940**, by Alfred Price (Scribner's, 1979. 246 Pages. \$14.95).

**EAGLE DAY: THE BATTLE OF BRITAIN**, by Richard Collier (Dutton, 1980, 256 Pages. \$12.95). Reviewed by Captain Don Rightmyer, Office of Air Force History.

The Battle of Britain is undoubtedly the most celebrated period in air warfare. While Hitler's Luftwaffe tried to destroy the "few" of the Royal Air Force in the autumn of 1940, the British fighter crews dealt the Germans a decisive setback. Never again would the German air force carry the challenge into England's skies.

Alfred Price has produced an excellent narrative account of one day in the air battles over Britain. Framed around the German air attacks against Kenley airfield on 18 August, Price recreates the day's activities from both the British and German vantage points. Through the exami-

nation of that one day in time, he provides an excellent background on the tactics and air battles that were typical of the entire campaign.

Richard Collier's work was originally printed in 1966, but has been reissued with the addition of over 100 photographs. His book deals with the entire Battle of Britain, and, like Price's book, is well-researched and written.

Both books are worthwhile reading for anyone who wants to know more about air combat in the opening days of World War II.

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**WATERLOO: BATTLE OF THREE ARMIES**, edited by Lord Chalfont (A. A. Knopf, 1980. 239 Pages. \$17.95). Reviewed by Lieutenant Thomas J. Vance, Fort Hamilton, New York.

This book, like so many others that have been written about the battle of Waterloo, begins with the question of why yet another work on this event. While the author admits that his book contains no new facts, he explains that it is an "experiment in popular military history."

A former Minister of State for Foreign Affairs in Great Britain, Chalfont brings together the views of writers from the three principal nations whose armies fought at Waterloo. He does this with telling effect, and the stories told by William Seymour, Jacques Champagne, and Eberhard Kaulback make the book exciting reading. Their narratives are supported admirably by the book's graphic design and a fine collection of black-and-white illustrations.

Chalfont's intention of "liberating the mind of the reader from the shackles of national prejudice" is good enough reason for yet another book about one of the world's greatest armed confrontations.

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**MR. LINCOLN'S MILITARY RAILROADS: A PICTORIAL HISTORY OF THE UNITED STATES CIVIL WAR RAILROADS**, by Roy and Arthur Meredith (W. W. Norton,

1979. 253 Pages. \$18.95). Reviewed by Benjamin F. Gilbert, San Jose State University.

The Civil War was the first war in which railroads were used effectively to support military operations. This book, an informative narrative with more than 200 excellent photographs, contemporary drawings, and maps, gives the reader an insight into the decisive role played by the wartime railroads and demonstrates how the engineers, trainmen, firemen, and track, car, and locomotive builders risked their lives under battle conditions.

During the war, each side attempted to destroy the other's trains and tracks while protecting its own. At first, the Union experienced chaos in operating the railroads in the North, but Congress eventually authorized President Lincoln to institute military control over all of the railroads and the telegraph lines. Lincoln then appointed Daniel G. McCallum, a Pennsylvania Railroad official, as director and superintendent of United States Military Railroads.

The Federal government also created the Military Railroad Construction Corps under the direction of an engineering genius, General Herman Haupt. His feats of bridge building and track laying caused the Confederate comment that the Yankees could rebuild tracks and bridges faster than they could be destroyed.

Besides depicting details of the strategic and tactical contributions made by the railroads to the Union victory, the book has chapters on Lincoln's arrival by train in Washington for his inauguration and on the trip of his funeral train from Washington to Illinois.

Civil War enthusiasts and railroad buffs should enjoy this highly entertaining book.

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**THE CLOUDED LENS: PERSIAN GULF SECURITY AND U.S. POLICY**, by James H. Noyes (Hoover Institution Press, 1979. 144 Pages). Reviewed by Dr. Joe P. Dunn, Converse College.



Britain's withdrawal from the Persian Gulf in 1971 caused apprehension in the West. Would the area erupt in internal conflict and a series of wars? Would the Soviet Union move in to fill the power vacuum? Would increasing U.S. involvement, arms transfers, and military assistance personnel drag the United States into an escalating arms race that could endanger regional stability and world peace? The post-1973 OPEC front added a new dimension to these questions.

James H. Noyes, Deputy Assistant Secretary of Defense for Near Eastern, African, and South Asian Affairs from 1970 to 1976, participated in the shaping of U.S. policy for the Gulf area during those crucial years. He believes that the Persian Gulf area is too often viewed through a "clouded lens" of myth, stereotype, and ignorance. His contribution to the prestigious Hoover Institution International Studies series is an ambitious attempt to clarify perceptions.

He provides necessary historical background, a rationale for the evolution of U.S. policy for the Gulf during the 1960s and 1970s, and a defense of the decisions that were made. His emphasis is placed necessarily on arms transfer policy and the issues of energy policy.

His best chapter, "Debates on U.S. Gulf Policy," lists a series of challenges to U.S. actions, which the author then systematically attempts to explain and refute. An extensive bibliography, an excellent appendix, which summarizes the principal characteristics of the major weapon systems that were involved in the arms transfers, and a helpful front leaflet map of the area complete the work.

The book was completed before the Iranian revolution, which, unfortunately, dated it even before its publication. Nevertheless, it should be widely read by those interested in the vital Middle East.

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**THE GREAT MUTINY: INDIA, 1857**, by Christopher Hibbert (Viking

Press, 1978. 472 Pages. \$15.95). Reviewed by Rear Admiral George L. Phillips, United States Navy, Retired.

One hundred and twenty-three years after the great Anglo-Indian conflict, a residue of propaganda and perversion of history may still be found on it. The Great Mutiny has been the subject of much romantic nonsense and misinterpretation, only partially presented or pointedly biased according to the viewpoints of the various writers.

The Russians have used it as a propaganda theme on perfidious colonialism; American liberals have emitted much hot air about it. But, on the other hand, learned native Indian scholars have described it as a movement based on "selfish motives with no allegiance to a common cause" and fanned by the "criminal elements of the population." One can take his choice.

Christopher Hibbert's fine book is a worthy story of this sad and strange affair, and it goes far toward putting some sense into the case, which had its birth in rumor and malicious subversion (the greased cartridges of Dum Dum arsenal) fanned by a few agitators. It has been well described as a local uprising against British reform of such ancient social evils as the *thug* murders and the *suttee* burning of widows, both Indian customs of long standing. In a broader sense, the mutiny was a reaction against progress and reform movements, strongly resisted by a few native princes. It is interesting that the unrest had its origins in the Bengal Army, which had been coddled and pampered and where discipline was at a low standard.

The Mutiny was extremely limited. Of the three Presidency armies only a few Bengal regiments were affected, while those of Madras and Bombay remained loyal. The British troops, few in number, were stoutly aided by the loyal native regiments, and even in the mutinous Bengali regiments many sepoys refused to join the mob and protected their British officers and families from slaughter. Meanwhile, the vast bulk of the population

remained peaceful and indifferent, often aiding the Europeans.

In fourteen months the unrest was over, though minor guerrilla activity persisted in scattered areas for a year or more. For the next 100 years, India would live in peace, prosperity, and industrial development until its independence in 1947.

In his excellent book, Hibbert presents a study of life in Victorian India, a close view of the soldier-statesmen and military leaders like Campbell, Havelock, and the three Lawrence brothers, and the stirring campaigns and battles at Lucknow, Delhi, and Agra.

There is a great deal of enjoyable reading and knowledge to be gained in this outstanding account of one of history's complex events.

---

#### RECENT AND RECOMMENDED

**PRACTICAL GUIDE TO THE SOUTH PACIFIC.** By Nicole Roucheux, with the collaboration of Floriane Tetoka. Distributed by Charles E. Tuttle Company, Incorporated, Rutland, Vermont, 1980. 264 Pages. \$6.95, Paperback.

**COUNTRIES OF THE WORLD AND THEIR LEADERS, 1980 SUPPLEMENT.** Gale Research Company, 1980. 358 Pages. \$20.00, Paperback.

**A GUIDE TO HERALDRY.** By Ottfried Neubecker. A Field Guide. McGraw-Hill, 1980. 256 Pages. \$9.95.

**FLAGS AND ARMS ACROSS THE WORLD.** By Whitney Smith. A Field Guide. McGraw-Hill, 1980. 256 Pages. \$9.95.

**HISTORY OF MARINE CORPS AVIATION IN WORLD WAR II.** By Robert Sherrod. 2d Edition. Presidio Press, 1980. 496 Pages. \$16.95.

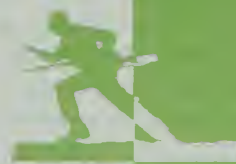
**THE POWER VESTED: THE USE OF MARTIAL LAW AND THE NATIONAL GUARD IN TEXAS DOMESTIC CRISES, 1919-1932.** By Harry Krenk. Presidial Press, 1980. 181 Pages. \$12.75.

**EUROPEAN WEAPONS AND WARFARE, 1618-1648.** By Eduard Wagner. Mayflower Books, 1979. 296 Pages. \$25.00

**DEFENCE BY MINISTRY: THE BRITISH MINISTRY OF DEFENCE, 1944-1974.** By Franklin A. Johnson. Holmes and Meier, 1980. 234 Pages. \$42.50.

**NAPOLÉONIC WARGAMING FOR FUN.** By Paddy Griffith. Hippocrene Books, 1980. 128 Pages. \$14.95.

# INFANTRY LETTERS



## TRUE BELIEVER

Dear Sir,

I would like to respond to Major Roy Croy's thoughtful letter on the Foreign Area Officer specialty (INFANTRY, July-August 1980, page 57).

For the past year and a half, I've been the FAO assignment officer for majors in MILPERCEN. (I know — instant suspicion!) I, like Major Croy, am a Middle East FAO (and combat arms officer) and a true believer in the importance of the specialty and the rewards it offers. I'm well aware of the dilemmas that FAOs sometimes face on their way to qualification in both of their specialties, but I don't believe the picture is always as bleak as Major Croy paints it.

Before continuing along that line, let me strongly second two of his points. First, the FAO specialty *may* involve lengthy training time, although ordinarily no more than three to three and a half years, and frequently less. An officer contemplating a full training program of that nature must realize that the Army is going to require a return for its investment if he's needed to fill an FAO requirement afterwards. Second, the specialty does require a high order of dedication. It may involve substantial overseas training or service in areas well beyond the reach of the "big PX." It is difficult under the best of circumstances for an officer to maintain highly perishable FAO skills while serving in his other specialty. And the FAO, like officers in other specialties, is sometimes called upon to make choices that may affect his chances for success in his other specialty.

Having said this, I must also say that a big part of my job is to help FAOs attain full FAO qualifications

while reducing, to the greatest extent possible, the time required for training. If we begin with the definition of a regionally qualified FAO (FAO course, FAO-related master's degree, language proficiency, and overseas training or experience), there are a number of possible short cuts. The FAO course is sometimes waived for officers programmed for a lengthy training program. A number of FAOs get masters' degrees on their own, or complete them through the degree completion program or permissive TDY. There are also cooperative degree programs offered in conjunction with CGSC that require only an additional six months of time. Frequently, officers have foreign language proficiency and overseas experience from prior military (or civilian) service. Others may go to an overseas FAO assignment in lieu of in-country training and complete area familiarization while working in a job.

In other words, there are many ways to skin a cat, and Major Croy's example is a worst case. His estimate is also one year longer than the present full Middle East training program, which eliminates the year of language training at the Defense Language Institute in favor of full language training in Tunisia.) At the other extreme, some officers become regionally qualified FAOs without spending any time in formal FAO training. Timing has a lot to do with it. The judicious use of short tours may help an officer to serve in both of his specialties before the critical point of promotion to lieutenant colonel.

As an aside, FAOs are not the only officers who confront a time dilemma. All officers have two specialties in which they should serve at the grade of major. Also, some 40 to 45 percent of all majors will spend six

months to a year at a CGSC-level school. Further, there are many requirements for majors in Army priority assignments (ROTC, Readiness and Mobilization Regions, and USAREC). That's a lot to put into the five and a half years that an officer usually spends as a major, and quite a few will not be able to meet all their goals at that grade.

Finally, I would like to take issue with two points in Major Croy's letter. He says that "the Infantryman who chooses to sacrifice infantry for FAO skill maintenance and enhancement undoubtedly shortchanges his overall career advancement possibilities." It is true that the officer who spends all his years as a major in FAO has not done much to enhance his chances for command selection. Promotion, however, is a different matter, and an officer's manner of performance in demanding jobs is the primary determinant of promotion. Promotion boards have begun to receive stronger guidance concerning promotion of officers in shortage specialties and, within FAO, in shortage regions. Since the new policy on longer command tours means that fewer of us will have an opportunity to command, the officer who bets on the wrong horse by foregoing FAO for troop duty in hopes of command selection without ever being selected is the officer who may well have shortchanged himself the most. I say this, though, fully recognizing that there are good reasons for seeking troop duty other than command selection. In the final analysis, both the Army and its officers will be best served if all of us try to do what we can do best and enjoy the most.

I do not agree that capstone jobs for FAOs at the rank of colonel are limited. The senior attache job more



likely than not will go to the fully qualified FAO if the officer agrees to leave the comfort and security of a Stateside billet. What happens all too often is that assignment officers may be left with the senior officer who *will* go, not the one who *should*. And the one who will go may or may not be a qualified FAO.

There are many challenging senior jobs available in the attache system, such as chief of a MAAG or Military Group or in high level staffs, both in the United States and overseas. As the majors assignment officer, I've seen many challenging and exciting assignment opportunities at that grade to which I would gladly have assigned myself had I been able to do so. The fact that these jobs are also important should be obvious to anyone who reads the newspapers.

The FAO specialty is a very complex one. For that reason, it is impossible to make general statements that apply to all FAOs. The best advice I can give any FAO is not only to talk to officers who are experienced in the field (like Major Croy), but also to discuss his specific circumstances with those of us in MILPERCEN who have the responsibility for assisting officers in their own professional development.

MAJ JOHN S. KELSEY  
FAO Assignment Officer  
MILPERCEN  
Alexandria, Virginia

## CONFUSING AND AMUSING THE TROOPS

Dear Sir,

A friend of mine, Sergeant Zachary Blake, and I were looking through your September-October 1980 issue and came across something that puzzled us greatly.

On page 5 you published a picture of the new traversing and elevating bar for the .50 caliber machinegun. This is a very interesting development, but does it also mean that we will have to redesign all of our machineguns to have the cocking handle

on the wrong side? Or could it be that the CVC and the gun were made for left-handed people? Is the driver's hatch on the wrong side of the vehicle to confuse the enemy? Or is it just that the photographer couldn't figure out which side of his negative was which?

I am surprised that the editors of this fine magazine didn't catch the mistake, but it gave all of us infantrymen here in Baumholder a good laugh.

SGT JERRY L. PHILLIPS  
Company A, 1st Battalion  
13th Infantry

*EDITOR'S NOTE: Maybe the R & D people should think of us left-handers once in a while, and confusing the enemy is also a good idea. (So is giving the troops in Baumholder a good laugh, come to think of it.) But in this case the one who printed the photo was the culprit — the negative was flopped, as Sergeant Phillips suspected.*



*Here's the way the photo should have looked.*

## TRAINING MANAGEMENT

Dear Sir,

I was very pleased to see the article entitled "Training Management," by Captain Stephen L. Orrison and

Lieutenant Arthur S. Perrit (INFANTRY, May-June 1980, page 39). A few months ago I received a copy of The Company Commander's Training Management Planning Book (ST 21-6-188-2), and immediately adopted this system of management.

I had occasion to learn how important training management is, especially in the Reserve Components, when, as a brand new National Guard company commander, I was faced with an external ARTEP, which was coming up during our annual training period in only two months. During that period, company and platoon level ARTEPs would be conducted, and the hands-on component of the SQT would be administered.

How does a commander plan for an ARTEP in such a short time?

First, he has to make an estimate of his company's training disposition by studying the previous year's FORSCOM 1-R (Report of Yearly Training Evaluation of Reserve Components of the Army). This report shows the weaknesses and the strengths in the unit's past performance. To understand these statistics, though, the commander must also understand the goals of the Army and of his higher headquarters. My recommendation is that the new commander dig out of the training files and study carefully any copies of past observation and training evaluation reports regardless of their origin. Any company or individual records of past SQT performance will also give him an indication of what to expect from his SQT training.

Once the commander has digested these documents, he can lay out a course of training that will eventually bring his company's training proficiency up to whatever standard he wants — perhaps to a training REDCON of T-2, or even T-1.

Aside from these measures, not a lot can be done in two months (which translates into eight unit training assemblies, or the equivalent of two weekend drills) to change his company's level of readiness, except to brace for the shock. But I recommend that any new commander in a

similar predicament exercise extreme control and demonstrate an aggressive style of leadership throughout the AT period and that he observe closely as the training for each of his company's MOSs is conducted. He should also listen closely to the advice and the recommendations of his active duty counterpart who is assigned to evaluate the company's overall performance.

Once he gets past that first AT period, though, there *is* something more he can do. He should start immediately to plan the training objectives for his company's next AT, and he should implement his plan for accomplishing these objectives at the very first drill assembly after the unit's return from annual training.

The commander should write down a definite set of training objectives and pass them on to each of his platoon leaders. The platoon leaders, in turn, should develop written training objectives for each of their respective platoons and sections. The company XO should be charged with developing the objectives for each of the company's headquarters sections — i.e., maintenance, mess, clerks, communication, supply, and armor. These written objectives should then be disseminated to the individual soldiers to let them know what is expected of them, and to give them the information they need to appreciate where they have been, where they are, and where they should be in the future.

Then these objectives must be applied to training operations. The training management that is put into action will ultimately determine the training effectiveness of the company.

Because the schedule of training is fixed, the company can effectively gear its approach to coordinate its activities: determining which Soldier's Manual tasks and skill levels are to be taught and who is to be responsible for teaching them; notifying assigned instructors; requesting training aids from TASC; drawing TEC lessons, TCs, TMs, FM's, How-to-Fight Manuals, and such materials from the

training room; and rehearsing the instructors. This process must be carried out for each of the MOSs assigned to the company.

In my own case, a form organizer, developed by Readiness Group Fort Bragg, helped my company keep track of each MOS and its assignments. The forms in the new planning book will be even more useful in the future.

No method of training management can be considered effective until the unit's performance has been measured. Using the techniques described above, my company increased its soldiers' average SQT scores from 70 percent overall (on the tests administered two months after I assumed command) to an overall average of 92 percent in its next AT period. The 22 percent increase in the scores can be attributed to the training management techniques that we developed (with the help of Readiness Group Fort Bragg) combined with a course direction that was defined by concisely stated objectives.

When the planning book came out, we found it especially helpful in recording the company's performance during field training. I recommend that other Reserve Component commanders also read the article by Captain Orrison and Lieutenant Perrit and that they make use of the planning book. With the limited training time RC commanders have available, we need all the help we can get.

JOE E. HARRIS JR.  
CPT, Infantry  
Co C, 2d Bn (M),  
120th Infantry  
Mount Airy, North Carolina

#### RESHAPE DRAGON'S TEETH

Dear Sir,

In any future war, light infantry units — if they are to be as effective as their mechanized counterparts — will have to rely on the Dragon as their long-range, throw-away armor killer. If the Dragon were employed

properly, it would be a real asset, but as it is employed now, it is an awkward, cumbersome piece of equipment that hinders the maneuverability of the unit that is equipped with it.

As presently employed, the Dragon weapon system is controlled by an infantry soldier, usually with an 11B MOS, and it is carried to the field organically with a rifle platoon. In addition to his Dragon, the Dragon gunner has to carry his usual combat load as well as his assigned weapon. At the same time, he is expected to maneuver as well as any other infantryman in the assault.

Because the Dragon is heavy and awkward to carry, though, the Dragon gunner is often lost as an effective maneuver element in the squad. And if the gunner should become a casualty during an assault, the Dragon could appear on the objective, if it ever appeared at all, separated from its parts, and the platoon leader would find himself trying to consolidate on the objective without his long-range armor killer.

Another problem is that the Dragon system has become slightly more sophisticated than most infantry soldiers are, and because of physical make-up not everyone can fire the Dragon.

If the Dragon is to realize its full potential on the modern battlefield, we have to make its organization as flexible and as effective as the weapon system itself. It should be employed and fired by soldiers whose sole mission is to train, maintain, and employ it to its maximum capability. These armor-killing experts should have the same MOS as the Army's other tank-killing experts, the TOW gunners — 11H. These experts could then be organized into a Dragon section within an infantry company. The section would consist of a staff sergeant as section chief, one radio telephone operator, and six three-man Dragon teams.

Each team would have a gunner/team leader, who would carry the tracker and, as his assigned weapon, a .45 caliber pistol. The other members of the team would carry Dragon



rounds and M16A1 rifles as their assigned weapons. All six teams would be under the control of the section leader who would be the company commander's foremost antiarmor advisor.

The teams could be employed by the section leader in mutually supporting pairs as part of a company antiarmor plan in the defense, or in bounds during offensive operations to support the movement of the advancing infantry. The Dragon teams could also be attached to the platoons for special missions such as antiarmor ambushes.

In garrison, the Dragon section would come under the control of the weapons platoon leader and would train as a separate element. It would concentrate on such subjects as physical fitness, tactical employment, Dragon gunnery, and armor vehicle identification.

The men, as part of a separate group and with a separate MOS, would develop the *esprit* and drive that comes from doing specialized work.

The section could also be used as a training base for the company to crosstrain 11B Dragon gunners who could be used as possible replacements. With its training concentrated, the Dragon section could qualify monthly and use the launch effects trainer to the same degree that mortar platoons now use sabot or pneumatic devices.

The Dragon system would thus become the asset to the company commander that it was designed to be instead of the burden that it now is. The flexibility gained from its assignment to a detached, specialized group could assure that the system was employed to its utmost.

Through the Dragon section, the weapon might prove to be the light infantry's hope for survival on the modern battlefield.

JONATHAN P. CHASE  
Captain, Infantry  
Co B, 1st Bn, 5th Infantry  
Schofield Barracks, Hawaii

## USE ENEMY'S EQUIPMENT

Dear Sir,

The recent mass tactical airborne assault at Eglin Air Force Base, Florida, by members of the XVIII Airborne Corps and the 1st Brigade, 82d Airborne Division reminded me of a problem that airborne and airmobile units face with regard to fire support.

I believe that a light howitzer battalion should accompany such a brigade to support it. Without indirect fire support from those 105mm howitzers, the brigade is dependent solely on 81mm and 60mm mortars for suppressive indirect fires against a hostile force. Even with A-10s, F-4s, and other U.S. Air Force close air support aircraft, the success of an operation will depend on how rapidly an airfield or suitable fixed-wing landing zone can be secured and made operational to bring in the heavy equipment needed to defeat a large enemy force. One way to overcome the limitations of airborne and airmobile fire support assets might be to use the enemy's equipment against him.

Regular forces require certain basic things to accomplish their mission: heavy weapons to hold territory and indirect fire support to help the maneuver units take and hold the territory. Special operation units (airborne, airmobile, Ranger, Special Forces) must travel with much less equipment, and they must depend on shock and surprise to seize an objective and hold on until relieved by heavier forces. But as numerous incidents in history point out, a special operation unit can be overwhelmed if adequately supported hostile forces can be brought to bear against it.

A special operation unit should normally land on or as close as possible to its objective for the greatest possible shock and surprise. Enemy weapons, especially heavy automatic and indirect fire weapons, should be overrun and brought into action as soon as possible to give added firepower to the attacking force.

The one drawback to this concept

is the fact that very few U.S. soldiers in airborne or airmobile units (other than Special Forces or Ranger) would know how to operate such weapons with confidence and accuracy. For indirect weapons, the troops would need firing tables, manual computation procedures or hand-held programmable calculators to solve the fire direction problem. Simplified training on laying and fire control equipment on any given weapon system, ammunition recognition by color code or printing, and the sequence for loading and firing the weapon would be useful training for some members of the assault force.

Captured indirect fire weapons would be used to give area saturation fires rather than precision missions. The capture and use of 82mm, 120mm, or 240mm mortars, 122mm or 152mm howitzers, 23mm or 57mm antiaircraft guns, RPG-7 or RPG-9 antitank grenades, Sagger or Swatter antitank guided missiles, armored fighting vehicles, machineguns, and such, could be decisive in helping a small force repulse a counterattack. Captured 122mm vehicle mounted rocket launchers could be used to devastate counterattacking forces while denying the enemy a most effective means of destroying the airfield or landing zone by saturation fires. Any massed formation is a target for a rocket launcher. And, by using enemy equipment, we could save our own supplies for precision work when it was most needed.

The equipment needed for this added source of firepower would be minimal: training circulars on aiming circles, mortar and artillery sights, firing procedures, ammunition identification, fuses and fuse setters, firing charts and range deflection protractors for the weapons, and firing tables. Hand-held programmable calculators with interchangeable chips would simplify many of these requirements. The soldiers would also need some hands-on familiarization to complete the reinforcement of the circulars.

The most important thing is troop education. If a position is overrun,

that information must be sent back to the S-2 or S-3 so that personnel can be sent to that location to put the weapon back in operation if needed. If we use captured items of equipment against the enemy, we increase our firepower and decrease his. It may all boil down to some simple concepts: Use what's available; use captured items first; make the enemy destroy things in place; don't destroy things indiscriminately; and most of all, waste not, want not.

Commanders should use organic and attached fire support to gain the objective and then use every available weapon to hold it. The important thing is to use this equipment as the icing on the cake; we should not plan an operation around the hopes of using captured material on the objective. Flexibility in using all the assets on the objective can make all special operations more successful.

LARRY A. ALTERSITZ  
CPT, Field Artillery  
1 Bn, 112th Field Artillery  
New Jersey National Guard

#### WHY ARE DOORS CLOSED?

Dear Sir,

The purpose of this letter is to re-

quest information as to why there are no programs through which an NCO can become an officer, especially in the 11B and 11C fields. Many of us have just about the same education as some of the officers around and still, just because we are in the 30 to 34 age bracket, we cannot get involved more.

We are too old to become officers but not too old to go to the field and perform the same duties under the same conditions. Many of us have to look in other fields, and there the doors are closed because of no experience or no release from the unit.

Infantry is losing good people because they are going into warrant officer flight school or civilian life.

SFC ORLANDO GALLARDO  
Fort Gulick, Panama

*EDITORS NOTE: The Adjutant General here at Fort Benning supplies the following information.*

*The Army does have a program for direct commissioning of enlisted personnel in the ranks of SGT/SP5 through SGM/CSM, which is explained in Chapter 3, Section II, AR 135-100. Generally, enlisted personnel can request direct commissions in the branches related to their MOSs or*

*any branch for which they are professionally qualified.*

*Specifically, applicants must meet certain requirements for age, education, mental aptitude, physical fitness, and other areas. An applicant who will be more than 28 years of age at the time of appointment may apply if he has a waiver from the Department of the Army. But applicants must also be able to complete 20 years of creditable service for retirement before their removal from active duty. Essentially, this means they must have less than 10 years service prior to appointment.*

#### BACK ISSUES WANTED

Dear Sir,

I need two back issues of INFANTRY to fill out my set — July-August 1974 and January-February 1976. I would appreciate it if anyone who has these two issues to sell would contact me.

2LT PAUL J. BEAUCHESNE  
826 Quinlan Road  
Ottawa, Ontario K1G-1S1  
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I am asking each unit that receives INFANTRY and each individual subscriber to check the mailing label on the copies they receive to make sure the address, including the zip code, is correct. If any changes need to be made, please let us know as soon as you can.

In the near future, the United States Postal Service plans to expand its zip code numbering system from five to nine digits. As we receive more information on the new system, we will add the other four digits to our mailing labels. If you write to us in the coming year, and know your new nine-digit zip code, please be sure to include the new number in your correspondence.

Any subscriber who wants to know the expiration date of his subscription can obtain this information easily from the first line of his copy's mailing label: The first four digits show the expiration date, with the first two representing the month and the next two the year. For example, 0781 would be July 1981.

INFANTRY has made an extra service available to any overseas subscriber who plans to move soon and who may not know his new address. If you notify us of the date you plan to move, we will hold your issues for you until you can send us your new address. Unfortunately, magazines sent to overseas addresses (APOs and FPOs) cannot be forwarded to a new stateside address, nor can they be returned to INFANTRY. So whenever your future plans include a change of address, be sure to let us know so we can keep INFANTRY coming to you.

Because of the heavy response to our announcements of back issues sales, our supplies of most issues are now depleted, but we still have copies of a few issues for 1979 and earlier. As for the 1980 issues, the first three are completely sold out, but we do still have copies of the last three.

E.C.S.

OUTSIDE BACK COVER:

Winter Road, Belgium, 1944, by Aaron Bohrod. (Courtesy,  
U.S. Army Center of Military History)







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# Infantry

A PROFESSIONAL JOURNAL FOR THE COMBINED ARMS TEAM



MARCH-APRIL 1981



# Infantry

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To win in battle, superbly trained and disciplined soldiers are the vital ingredient, soldiers who have been conditioned by thorough training to react through habit when confronted with the cruel, harsh conditions of combat.



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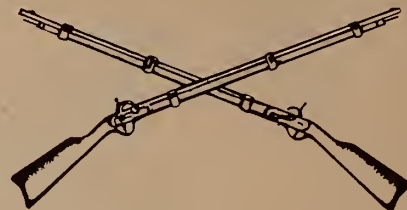
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# Commandant's NOTE



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**MAJOR GENERAL DAVID E. GRANGE JR.**

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## TANK AND INFANTRY TOGETHER

The heart and soul of any future land battle will be our infantrymen and our tankers, for they are the only members of the combined arms team that can fire while they maneuver against an enemy force. They are the ones who meet the enemy face to face in the direct-fire battle, supported by all other members of the combined arms team.

We infantrymen feel strongly about this relationship. We feel so strongly, in fact, that the bulk of the tactics instruction we give our officer advanced classes at the Infantry School is devoted to infantrymen and tankers working together. We feel, too, that on the future battlefield neither will be able to go it alone. The strength of our combined arms team will depend on its unity of effort, on all of its elements pulling together to reach a common goal.

Our combat maneuver tactics have been developed for every foreseeable eventuality. For example, there will be times in offensive operations when the infantry elements — soon to be mounted in their new fighting vehicles — will lead, and there will be other times when tank elements of the team will take the lead. Where the enemy's antiarmor fires can be readily suppressed and there is good footing for the tanks, tanks will lead, and fast-moving infantrymen will protect and clear the team's flanks and rear.

When tanks do lead off, tanks and infantry should maneuver in such a manner as to offer one another mutual support. Infantrymen, in their vehicles, should follow the

tanks closely enough to support the tanks or to maneuver to protect and clear their flanks. But they must not be so close to the tanks as to be caught by enemy fire directed against the tanks. In many attacks the tank will be the most important ingredient. We infantrymen should accept that the tank is not a support weapon system but a weapon system to be supported.

The infantrymen should remain in their vehicles when the enemy's resistance is light or when the enemy's defensive effectiveness has been largely overcome by friendly supporting fires. By staying mounted as long as they can, infantrymen save their strength, operate from a protected environment, and take the best advantage of the team's other supporting elements. In so doing, the infantry can fully exploit the tactical mobility of its mechanized vehicles.

During an attack it may often be necessary for the infantry to dismount and lead the attack. Dismounted infantrymen should lead when enemy obstacles or restricted terrain cannot be bypassed and prevent mounted movement; when the enemy's antiarmor fire cannot be suppressed except by an infantry assault; when visibility is limited; and when terrain seems to beckon a mounted movement into possible ambush country.

Regardless of which element leads, though, the tank-infantry combined arms team cannot ignore the principle of overwatch — one element in position to fire while the other

moves. Once contact with the enemy is made, overwatch and movement become fire and maneuver.

If a tactical commander is to be successful in battle, he will have to use initiative, imagination, and his knowledge of the capabilities and limitations of his infantry and tank units. He must be able to assign to each element the job it does best. An innovative commander who can fully use each element's weapons systems and mobility without violating the fundamentals of their employment will significantly improve his chances of success on the battlefield. And by being an opportunist as well, he will react instinctively to changing battlefield situations, thus avoiding the pitfall of rigidity.

Like a well-oiled machine, a combined arms operation can achieve its greatest efficiency only when all of the elements committed to battle operate as equal and important members of a team. This can be brought about only by extensive combined arms training. In that training, three principles should always be followed:

- Tank platoon integrity must be maintained. The platoon must be employed as a unit under the control of its platoon leader. Although the light and heavy sections of a tank platoon may be split and maneuvered or positioned separately, the tank platoon leader must retain control of his unit.

- At the company team level, platoons must work with other platoons; they should not be isolated and incapable of supporting one another.

- The separate elements of any combined arms team must train together. The teamwork that is necessary for success in battle can be achieved only by team training.

There is much to be said for the old cliché: The way you train is the way you fight, and the way you fight is the way you have trained.

We at the Infantry School believe that the combined arms team that fights and wins must train together at the most basic levels. Infantry squad members must learn to know tank crew members albeit only through the phone on the back of the tank. Platoon leaders and platoon sergeants, tank and infantry alike, must learn to move downrange using overwatch techniques and suppressive fires. (During training we should use as much live fire as possible. But when safety dictates, we must use simulators to add the needed realism.) Ranges that provide a Modified Tank Table IX, configured to permit infantry maneuver and infantry fighting vehicle suppressive fires in support of tank platoon maneuver, are required. And this must all be supported by the other members of our combined arms team. We are convinced that successful combined arms training starts at the grass roots — infantryman to tank, squad leader to tank commander, and tank platoon leader to infantry platoon leader — and not at the FTX level.

In the future, more and more operations will be conducted under conditions of limited visibility, and particularly

at night. Accordingly, our combined arms commanders must get their units ready to operate under these conditions. Rehearsals and training cannot be overemphasized because these help the soldier to learn to control any fear of the dark he might have and to actually consider the dark a silent friend.

While the majority of our training avoids built-up areas, we will not always be able to do so because of the rapid spread of urban areas throughout the world, and especially in Europe. The infantry-tank team, therefore, must be prepared to conduct military operations on urbanized terrain (MOUT). Because the tank is more vulnerable in urban terrain, close infantry support is necessary for the tank's survival. The tank in turn can furnish the infantry considerable firepower, as well as a certain amount of shock action, even in the largest built-up areas.

Regardless of the tactics, formations, or movement techniques that the combined arms commander uses, he must give timely commands and directions to his units. His orders must be clear and brief, but complete. He should use verbal orders as often as possible, depending on unit SOPs and map overlays to shorten his instructions. In addition, he must keep well forward to stay abreast of the situation and to coordinate personally the team's actions.

Within the team itself, the elements will use visual signals, messengers, and wire communications when not in contact with the enemy. Once that contact has been made, radio may become the team's primary means of communication, with visual signals and messengers being used as much as possible. Unit SOPs will dictate the use of operation codes, short-burst transmissions, rapid frequency changes, and frequent changes in location to keep the enemy from monitoring or jamming the team's radio nets.

While the Army as a whole is made up of many component parts, all of which are necessary for the conduct of a modern battle, the infantry-tank combined arms team will be the linchpin of any future battlefield. It will form the force that will disrupt the enemy's plans by surprise counterattacks and seize the initiative by offensive action. The more this team can exploit opportunities, use angles of attack, and take full advantage of the terrain, the more successful it will be. In short, the closer infantry and tank units train with and support each other, the better our chances of victory.

As a combined arms force, infantrymen and tanks complement and bring out the best in each other. The key to their success is aggressive, responsive teamwork, a teamwork that can only be fully developed through days and months of training supported by all the other members of the combined arms team.

To all of our infantry commanders, then, I say: THINK COMBINED ARMS! THINK INFANTRY AND TANKS TOGETHER!



# INFANTRY NEWS



THE FOLLOWING NEWS ITEMS have been furnished by the Enlisted Division, Directorate of Training Developments, at the Infantry School:

- **1981 SQT Highlights.** The 1981 CMF 11 SQT will consist of a written portion called the Skill Component (SC), a Hands-On Component (HOC), and the new Job-Site Component (JSC), which will replace the Performance Certification Component (PCC). The JSC will have eight supervisor-evaluated tasks. The addition of the JSC increases the performance-oriented portions of the SQT to about two-thirds of the value of the total test with the other one-third being the written portion.

- **PT Scores.** Candidates for the Expert Infantryman's Badge (EIB) must pass the new Army Physical Readiness Test (APRT) by scoring 60 points or more on each of the three events and must have an overall score of at least 225 points.

- **Soldier's Manuals.** The Soldier's Manuals of Common Tasks are scheduled to be sent to the field in June 1981. There will be a Skill Level 1 manual and a Skill Level 2, 3, and 4 manual. These manuals include tasks for all soldiers, regardless of their MOSs.

- **BNCOC.** TRADOC has directed that the BNCOC/CA program be evaluated and updated to meet the current needs of the Skill Level 3 combat arms squad leader. The idea is to develop a hard hitting course for infantry squad leaders.

- **New Regulation.** The new EIB regulation, AR 672-12, is now being staffed and its publication is expected during the second quarter of Fiscal Year 1981. This regulation will supersede interim change number 101 to

AR 672-12, which expires 13 May 1981.

Additional information on any of the above items may be obtained from the Soldier's Manual Branch, Enlisted Division, Directorate of Training Developments, AUTOVON 835-1670/4219. The point of contact is Major Frank J. Klarnet.

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A NEW BOOKLET on military operations on urban terrain (MOUT) has been prepared by the Defense Branch, Command, Tactics, and Doctrine Department, The Infantry School.

Units may request copies by writing to Commandant, United States Army Infantry School, ATTN: ATSH-DOT-ETMSD, Fort Benning, Georgia 31905.

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THE COMMAND, TACTICS, AND DOCTRINE Department of The Infantry School has given us the following How-to-Fight literature update (see INFANTRY, November-December 1980, pages 5-6):

- **FM 7-8, The Infantry Platoon and Squad** has been forwarded for publication and will be in the field by mid-1981.

- **FM 7-10, The Infantry Rifle Company** is in the final draft stage of development and will also be published by mid-1981.

- **FM 21-75, Combat Skills of the Soldier** is in the final draft stage of development and will be published by the end of 1981. (Note title change.)

- **FM 90-4, Airmobile Operations** has been published and is being sent to the field through pinpoint distribution.

- **FM 90-5, Jungle Operations** is in

the final draft stage of development and will be published in 1981.

- **FM 90-10-1, An Infantryman's Guide to Urban Combat** is in the final draft stage of development and will be published by the end of 1981. Copies of the final draft have been sent to infantry units in the field for their use until the manual is published. (Note title change.)

- **FM 7-999A, Tactical Employment of Mortars** is in the initial draft stage of production, and a coordinating draft will be published by the end of 1981.

- **FM 71-1, The Tank and Mechanized Company Team** is being revised, and a preliminary draft is now being written. A coordinating draft will be distributed for field coordination by the end of 1981.

- **FM 71-2, The Tank and Mechanized Infantry Battalion Task Force** is being revised. The preliminary draft is now being written, with a coordinating draft to be sent to the field by mid-1981.

- **ST 7-7-1, The Mechanized Infantry Platoon and Squad (IFV)** has been published. It will be used as the basis for the development of FM 7-7-1, The Mechanized Infantry Platoon/Squad (Tactical Operations).

- **Appendix H, The Airborne Infantry Battalion, to FM 7-20, The Infantry Battalion** has been completed and is being issued to units in the field through pinpoint distribution.

- **Appendix I, The Ranger Battalion, to FM 7-20, The Infantry Battalion** has been completed and is being issued to units in the field through pinpoint distribution.

- Two manuals are being written to support the test efforts of the High Technology Test Bed (9th Infantry Division). One will cover the mortar

platoon, the other, the antiarmor company.

• Two MOUT movies are now in the final stages of production. Part I, The Offense, and Part II, The Defense, will be ready for release early in 1981.

THE FOLLOWING NEWS ITEMS were submitted by the Directorate of Training Developments, The Infantry School:

• **The Antiarmor Subcaliber Engagement Trainer (ASET).** The ASET for the TOW weapon system has been developed and is being tested at the Infantry School. It consists of a mounting bracket, M16 rifle, and a solenoid (firing mechanism) that mounts on the top of the TOW Daysight/Tracker.

The device fires standard 5.56mm ball ammunition, and it can be powered by any vehicle that has a 24-volt electrical system. A 1:35-scale range with three-dimensional targets is used with it.

The ASET will be used to augment the current TOW training programs, and will provide improved tactical training for both gunners and leaders. A permanent range structure is not needed.

At the moment, the School has encountered certain ASET developmental problems that may be beyond its ability to solve, and the possibility of contracting the device's final development is presently being studied. *(This note was prepared by Captain Michael R. Bearden, a mission area analyst in the Systems Division, DTD, USAIS.)*

• **M60 Machinegun Training.** A comprehensive review of M60 machinegun training is presently being conducted by DTD, with the assistance of the Army Research Institute people stationed at Fort Benning.

Thus far, the review has involved extensive literature research and field visits to identify previously proven instructional techniques and the instructional methods used by other services and foreign armies.

The particular areas now under

consideration include zeroing techniques, the use of the traversing and elevation (T&E) mechanism, firing from the bipod, and night firing. A major effort is being made to improve the machinegun training given to the soldiers in one station unit training

THE FOLLOWING NEWS ITEMS were submitted by The Infantry Board at Fort Benning:

• **Parachute Procedures in Chemically Contaminated Areas (PAP-RICCA).** Our training literature contains little guidance on fighting in chemically contaminated areas. In fact, much of our routine training carefully avoids missions that might require soldiers to be completely encased in their chemical defense equipment (CDE).

(OSUT) units; the program's future efforts will be directed at upgrading the machinegun training in the Army's field units. *(This note was prepared by Major John R. Lockard, who is chief of the Small Arms Team, Systems Division, DTD, USAIS.)*

Recently, however, as the result of a request from the XVIII Airborne Corps, the Infantry School has been looking into the problem of coming up with the proper kind of procedures for airborne units to use when they must jump into a chemically contaminated area. The School asked the Infantry Board to evaluate jump procedures for parachutists wearing their CDE, including the M17A1 protective mask.

The Board's jump operations were



A test soldier dons his chemical defense equipment before boarding an aircraft.



conducted in three phases to evaluate a parachutist's ability to accomplish the five points of performance and the other required actions while wearing or carrying his CDE in addition to his weapon and other equipment.

Phases I and II were conducted at Forts Benning and Devens. The test group consisted of 15 experienced parachutists from the Infantry Board and 75 from the 10th Special Forces Group. Phase III was conducted at Fort Bragg using members of the 82d Airborne Division.

Pre-jump training was conducted concurrently with the jump operations at all three locations to establish and confirm the proposed procedural changes that would be involved in conducting airborne operations in a chemically contaminated area.

In the testing program full aircraft loads of parachutists jumped from C-123, C-130, and C-141 aircraft employing mass tactical techniques. (No actual mass tactical operations were conducted, though, because of safety restrictions.) The aircraft loads were organized to include an appropriate number of personnel jumping with "H" harnesses, weapons, and individual equipment containers, ALICE, and M1950 weapon containers.

The data obtained from the test program will be used by the Infantry School to study possible revisions to TM 57-220 and the appropriate programs of instruction that are given at the School.

The test manager was Major Daniel Turner, Equipment Test Division, who was the first parachutist to jump while completely encased in his CDE.

- **Closed Cycle Cooler for Thermal Night Sights.** When the man-portable common thermal night sights were developed, a mechanical cooler was supposed to be provided as part of the system. Unfortunately, the technology at the time was simply not available to develop a cooler that was both efficient and acceptable. An interim system was provided to prevent a long delay in getting the system to the



field.

This interim cooling system consists of bottles of compressed dry air that are actuated by a thermostat, a nickel cadmium battery to power the device when it is not being powered by a vehicle, and a vehicle-power conditioner to be used when it is mounted on a vehicle. This system does provide power and cooling for the sights for about two hours before the coolant bottles and batteries have to be replaced.

The Infantry Board recently conducted a concept evaluation of a closed cycle cooler (CCC) that has been developed as a possible replacement for the current system. The Infantry School will use the test data to decide whether further development of the CCC is warranted.

The CCC consists of an electrically operated mechanical cooler, battery pack, vehicle power conditioner, and power cables. It is designed to provide adequate cooling for the TOW

night sight (AN/TAS-4) and the long-range night observation device (AN/TAS-6) for ten to twelve hours before the battery must be replaced. It will operate indefinitely if it is powered by a vehicle's electrical system.

The test soldiers alternately used the test item and the current item with the AN/TAS-4 and the AN/TAS-6 during a series of target detection and recognition exercises. The targets consisted of single and multiple, moving and stationary, wheeled and tracked vehicles, and dismounted personnel at ranges up to 2,400 meters.

The exercises were performed from ground mounts as well as from wheeled and tracked vehicle mounts. Although the emphasis was placed on night testing, some testing during daylight hours was also conducted with artificial (smoke) obscurants.

The test manager was Captain John M. Grissett, Equipment Test Division.

ARMY 86 IS THE TITLE given to a group of TRADOC-directed studies that have been designed to develop the most effective combat organizations for the Army in 1986 thereby facilitating the integration of new and

advanced materiel systems, operational concepts, and human resources.

Division 86 was the force design study of the heavy division. It has been completed and approved as a

force design plan, and a methodology has been developed for changing the Army's present organizations to the Division 86 structure. The transition phases will be keyed to the introduction of the new materiel systems on which Division 86 depends.

Infantry Division 86 (ID 86) is under way at this time. The insights derived from ID 86 will be tested by the 9th Infantry Division.

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AS WE MENTIONED IN OUR September-October 1980 issue (page 4), the new Infantry School Catalog of Instructional Material (1980-1981) has been distributed to the field.

Units or individuals who want more information about the catalog should write to the Commandant, United States Army Infantry School, ATTN: ETMS Div-DOT, Fort Benning, Georgia 31905, or should call AUTOVON 835-1823/2141 or commercial 404/545-1823/2141.

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THE SKILL PERFORMANCE AIDS (SPAS) program combines the development of technical manuals and associated extension materials into an integrated package to help a soldier learn how to operate and maintain a hardware system. SPAS is another extension training material (ETM) program, the aim of which is to give the soldier in the field materials that can help him improve not only his own proficiency but his unit's proficiency as well.

ETM is a training package prepared for a specific piece of equipment. It contains all of the instructions and materials necessary to support a supervised on-the-job training (SOJT) program for a particular MOS and maintenance level for a particular item of equipment. It is designed to build on the minimum prerequisite skills that a soldier has acquired through formal schooling. It is not a complete course for the MOS and does not replace formal schooling.

The Army plans to issue SPAS ETMs so that units in the field will receive them at about the same time

they receive a piece of new equipment and its technical manual. ETMs are also being developed for some equipment that is already in the field, and they will be distributed automatically to all units or activities that need them.

Anyone who is interested can obtain additional information on SPAS ETM by calling the SPAS ETM distribution hot line at Fort Eustis, Virginia, AUTOVON 927-5069/4608 or commercial area code 804, 878-5069/4608.

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THE UNITED STATES MILITARY ACADEMY Preparatory School (USMAPS) at Fort Monmouth, New Jersey, is accepting applications for the class of 1981-1982, which begins in August 1981. The deadline for submitting the applications is May 1981.

USMAPS is an Army school that trains selected enlisted soldiers to qualify for admission to the United States Military Academy at West Point. Its 10-month academic year emphasizes English and mathematics.

Interested soldiers are urged to apply as early as possible because of the competition involved in the selection process. Last year, more than 1,200 Regular Army soldiers applied for the School's 170 vacancies.

An applicant must be:

- A citizen of the United States or able to become a citizen before he enters the Military Academy.
- At least 17 but not 21 years of age on 1 July of the year in which he enters the School.
- Unmarried, and have no legal obligations to support a child or children.
- In good health, have no disqualifying physical defects, and have vision correctable to 20/20.
- A high school graduate, or the equivalent, with a solid academic background. Ideally, applicants should have four years of English and three years of college preparatory mathematics. An individual with obvious leadership potential but a

weaker academic background should not be discouraged from applying.

- Highly recommended by their commanders. A commander's counseling guide is included as the appendix to AR 351-12. All recommendations are closely reviewed.

The inclosures that a soldier must file with his application are described in paragraph 9, AR 351-12, 1 October 1980. Although school transcripts and SAT/ACT test results may be forwarded separately, MILPOs and commanders should insure that the following items are included with a soldier's basic application:

- Medical forms (SF 88 and 93) not more than one year old.
- GT score.
- ETS date.
- MOS.
- Most recent BPFT/APFT results less than one year old (baseline PT scores cannot be accepted).
- Current photograph.
- Commander's evaluation.
- Personal handwritten essay on the subject: Why I want to attend the Prep School and my goals in life.

Anyone who would like further information may call the USMAPS Admission Office at AUTOVON 992-1807 or commercial 201/532-1807, or write to the Commandant, U.S. Military Academy Preparatory School, ATTN: MAPS-AD-A, Fort Monmouth, New Jersey 07703.

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THE ARMY MISSILE COMMAND (MICOM) has successfully conducted the first manned firings of the Army's new Viper tank killer. Additional firings are planned, along with environmental tests.

Eight gunners each fired three rounds — a single round one day, then two rounds fired one minute apart the following day.

The Viper is light, compact, and shoulder-fired from a throw-away case. It is more powerful, accurate, and effective than the M72 LAW, and has a much longer effective range. (INFANTRY, May-June 1976, page 10.)



# FORUM & FEATURES



## TANK KILLERS:

### Between Wars

ROBERT C. SMITH



*EDITOR'S NOTE: This article is the second in a six-part series. The first part appeared in our January-February 1981 issue, and succeeding articles will appear in our other issues this year.*

Before the ink was dry on the Treaty of Versailles, the Western Allies began dismantling their armed forces. Every arm of every service suffered from the reduction in force, and the pool of trained manpower, which should have been exploited, was allowed to ebb away in the strongly budget-conscious, anti-military atmosphere that persisted in the following years. This was a time of startling naivete, when men of fine and noble sentiments assumed that war could be legislated away like some sort of unwanted city ordinance.

The great depression only served to aggravate this problem because military budgets, it seemed, were the most easily reduced; after all, if we are not fighting a war, the budgeteers assumed, we do not need a large mili-

tary force. Unfortunately for Europe, and later for the world, the leaders of Italy and then of Germany did not feel the same way. The end result was easily predictable. Even in the Pacific Ocean areas in the 1930s there was abundant proof that treaties could not stop wars: The Japanese were busily engaged in yet another of their interminable campaigns against a prostrate and almost defenseless China.

The Soviet Union, after a sound thrashing by Poland in the early 1920s, turned its violence inward in a series of purges, deliberate deportations, and mass murders. Eventually, most of its important military leaders were executed and replaced by Communist Party hacks: Conservative estimates indicate that the Soviets managed to kill ten million of their own people in the name of socialist purity.

On the hardware front, though, there was some cause for rejoicing — tank design, despite budget constraints, progressed rapidly during the 1920s and 1930s. The new tanks that were developed had increasingly thicker armor, better speed, and

more effective weapon configurations. Even cross-country mobility, that bane of early tanks, improved as a result of maneuvers held in Great Britain and, to a lesser extent, in the United States. This period saw the evolution of tank design as we now know it. The high-sided rhomboidal tank was compressed vertically to form the basic hull or chassis, while the main armament was grouped together and carried in a turret perched on top of the hull.

By no means should we assume that the tank's evolution proceeded in a neat and orderly fashion from 1919 to the present. Many sterile lines of development were pursued, and as a result many grotesque vehicles were foisted on the hapless military services of all countries. One of these was the machinegun tank, a lightly armored vehicle with (usually) two coaxial rifle-caliber machineguns. (The German *Pz II* was an exception because it also mounted a 20mm cannon with its machinegun.) It was assumed that these tanks would be able to scoot around the battlefield with impunity, shooting up any infantry-

men unwary enough to be caught in the open. Unfortunately, no one ever bothered to check to see if their armor could stop armor-piercing rounds from rifles or machineguns. Most of the armor could not, with obvious results. To carry the idea to its extremes, no one even thought about what would happen if these tanks ran up against a cannon-armed enemy tank. In short, the machinegun tank was not effective against anyone or anything except poorly armed tribesmen, none of whom would be found on a European battlefield.

Another monster that appeared was an outgrowth of the old World War I tank; this one also carried a multitude of guns and machineguns. The modernized version took the turret design and carried it to absurd lengths, apparently on the theory that if one turret was good, three, four, or more would be better. But there was little communication or coordination between the turrets, and the tanks were quite slow. Before long, the multi-turret tank sank into well-earned obscurity.

## ANTITANK GUNS

For the infantrymen who would have to confront the new tanks on the battlefield, the development of anti-tank weapons failed to keep pace with the development of the tank. As the years passed, in fact, budget constraints made it plain that an army could not have a good tank and a good antitank gun, too, so various expedients were adopted to keep the infantrymen happy. But most of these only tended to widen the gap between the pure-infantry-weapon school of thought and the artillery school of thought.

One way to penetrate armor is to increase the velocity of the projectile. Although this sounds simple, in actual practice a number of problems must be solved. Increased velocity requires a super-hard projectile that can penetrate armor without shattering. Even more important to a

budget-conscious design staff is the fact that high velocity combined with a hard projectile tends to cause gun barrels to wear out in a short time.

The Polish Army developed one of the neater dodges in its efforts to produce a high velocity antitank rifle. Instead of increasing the caliber of the weapon and the size of its cartridge case to increase velocity, the Poles reversed the process. In an apparent direct copy of the German "T" rifle, the Poles produced a rifle with the same cartridge case and

weapons. Always ingenious at producing new weaponry, the Germans went the Poles one better and developed a 7.92mm armor-piercing round that included a tiny base pellet of tear gas. While it seemed like a good idea at the time, the tear gas apparently had no effect on a crew already locked up inside a steel box that was filled with fumes and smoke. The United States briefly flirted with the necked-down large caliber rifle round; fortunately for our infantry, the round was never a widespread



weight of powder, but the case was necked down to 7.92mm. When the massive powder charge was touched off behind the very light bullet, a very high velocity was produced — on the order of 4,100 feet per second. This allowed the bullet to puncture thin armor with relative ease.

On the principle that turn about is fair play, the Germans managed to obtain some examples of the new Polish weapon and used them as a basis for their *Panzerbuchse* series of

standard issue.

The British stuck with the large caliber antitank rifle and produced what was basically an improved version of the old "T" rifle. This was the .55 caliber Boys Antitank Rifle — the name of which, incidentally, comes from its designer. Normally depicted as rather stodgy, the British apparently became carried away with the marvels of their new weapon and produced a version of their Bren gun carrier that mounted the rifle as its



main armament. (It was surely one of the most inefficient uses of materiel on record.)

In the Soviet Union, the designers who had survived the purges were hard at work on a domestic version of the antitank rifle. A very potent new cartridge was developed for the Soviet weapon, the 14.5mm round, which would serve on long after the antitank rifles were forgotten. Two versions, by different designers, were produced — the PTRD and the PTRS rifles. Both were, in a manner of speaking, semiautomatic rifles; they were certainly the ugliest pair of weapons in existence. They looked as if they had been assembled with parts gathered from the local junkyard. But they did work, and, if nothing else, they served to keep German armored units on their toes.

## SUPER RIFLE

Several nations decided that the answer to the tank was a sort of super antitank rifle, and the rush was soon on to find a weapon with a suitable caliber that a rifleman could fire without permanently injuring himself — one that could penetrate enemy armor. Eventually, most of the developers settled on the 20mm round, because in addition to penetration, it had the ability to carry a significant amount of high explosive into an enemy vehicle.

Several nations got into the act, designing weapons for domestic use and for export. The Swiss, Swedes, Japanese, and Finns produced their own versions. As can be imagined, they were all difficult to fire, with the Japanese version being particularly bad in this respect, since it was essentially a cut-down, full-automatic anti-aircraft gun that had not been modified to fire semiautomatically. The Finnish *Lahti* was probably the best of the lot; it was almost comfortable to fire. (It is interesting to note that some of them were sold on the sporting gun market in the late 1950s and may still be around.)

Although the antitank rifle was still

relatively mobile (if any piece of iron that weighs about a hundred pounds can really be called mobile), even the largest calibers could not penetrate frontal armor at all ranges. In most cases, not even the 20mm rifles could penetrate a tank's armor except at the closest range.

If an infantryman's antitank weapon cannot successfully attack enemy armor at a reasonable range and from any angle, the weapon is almost useless to him. Even in flank attacks, the smaller caliber antitank rifles that were developed before World War II merely annoyed the tank crews, usually with fatal consequences for the riflemen. Most nations took a careful look at the subject of antitank rifles just before the war broke out in Europe in 1939, and probably would have dropped the weapon entirely if there had been an available substitute.

Instead, for the first year or two of the war (and throughout the war for the Soviets), many good men died because infantrymen did not have in their hands a decent tank killer. Most of the tactics developed for using the antitank rifles involved a flank attack, which meant that the rifleman had to be on a line with his target before he could effectively attack it. Because he was thus exposed to his target's accompanying armor and infantry and because he had been partly or wholly bypassed by the enemy's advance, it became increasingly suicidal for him to use his antitank rifle.

## ARTILLERY

It became obvious that the infantryman would have to have a better weapon to deal with the tank attack, but the weapon that he was given as a replacement was almost as bad as the antitank rifle. The small caliber artillery piece was a sort of ugly duckling when it was first introduced in the 1930s. The infantrymen knew that they needed some sort of effective tank stopper, but they did not want a miniature field piece in their battalions. The artillerymen, on the other

hand, objected because the new weapons seemed to encroach on their field. The argument may not seem all that important, but the introduction of these weapons had some serious consequences for an infantry battalion. Because of budget problems, the crew of the weapon had to be drawn from the infantry platoons, which reduced front-line rifle strength. The increase in the number and the variety of weapons that the battalion commander had to control caused increased friction in his communication system and forced additional training on him. His supply system was complicated because he had to have more motor vehicles or horses and had to provide for them, all on a limited budget. And the antitank guns could be used only if there was an attack involving armor; otherwise, the crews sat around doing nothing.

The artillery had a reasonable complaint also, but not quite the argument the infantry had. To the artilleryman, the blurring of the distinction between artillery and infantry was intolerable, and the diversion of scarce resources to produce such a weapon would affect the purchase of other artillery equipment. In addition, training the infantrymen to be gunners would divert trained men away from their real duty, which was manning the guns. In any case, all the arguments were suddenly made academic when the German panzers rolled over Belgium, Holland, and France in a campaign that was more successful than any that had ever been waged.

The developers of the small-caliber antitank artillery weapons had to make a number of tradeoffs if they wanted them to be used. The weapons had to be small enough and light enough to be manhandled by their crews over rough or muddy terrain; they had to have a low silhouette to avoid being spotted by the enemy; and they had to be easy to conceal. The shells they fired had to have good penetration in relation to their size, and they had to carry a reasonable amount of explosives as well.

Most of the weapons that were

constructed ranged in caliber from 25mm up through 47mm. The smaller caliber shells were patently too small to be effective; they were only slightly larger than the antitank rifles they were designed to replace. The larger sizes, despite somewhat greater penetration, still offered only slight improvement over the 37mm round and then at a much greater cost in weight, dollars, crew size, and required vehicles (or animals) for towing.

Most of the light artillery pieces eventually standardized on 37mm caliber, partly because that caliber was a design favorite and partly because the round was quite effective in terms of penetration and cost, but primarily because the Germans introduced the first of their major antitank guns (PAK series), the PAK-36. Without a doubt, this was the best of the 37mm guns; it was light, just about 440 kilograms (970 pounds) in firing position, and it was quite mobile.

The United States was able to obtain two examples of the weapon and was impressed enough to try to improve on it. Despite all their attempts, though, the designers eventually went back to the original design, which was standardized, late in 1938, as the M3A1 antitank gun. It would be nice to report that we paid licensing fees after copying the gun, at least while we were at peace, but we didn't. The Soviets, on the other hand, saw the PAK-36, liked it, and produced it in huge numbers under license.

The British were less well served by their entry into the light antitank gun race — their 2-pounder (40mm) gun was a masterpiece of the gun-makers' art, yet it suffered from problems that would never really be solved. First, to get all-around traverse, the British plumped their gun on top of a cruciform platform, making it quite tall and easy to spot. Second, the weapon was heavy, about 800 kilograms (1,760 pounds), which precluded easy mobility, and, third, the weapon was expensive, both in terms of actual cost and in

terms of materials, machining, and the special finishing of its parts. Even so, the 40mm gun did have a reasonable penetration and was adopted as standard.

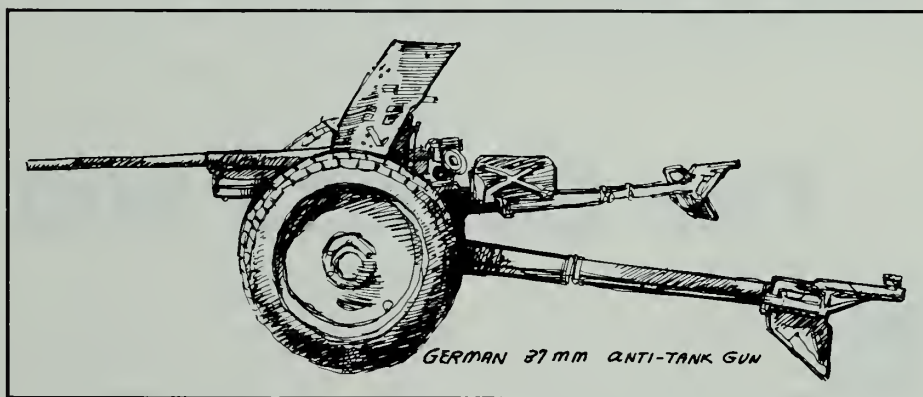
In the Soviet Union, despite the purges of many of its top military leaders, the nation with the world's largest tank force realized almost immediately that the 37mm gun, no matter how good it was, wouldn't be able to stop the tanks then on the drawing boards. To answer this potential threat, the Soviets began work on a new 45mm gun, basically a scaled up PAK-36, with a few typically Soviet touches thrown in.

The Germans soon came to the same conclusion, and began the development of a new, 50mm antitank gun, which was similar to their 37mm PAK-36. Apparently, no one else

charge explosive (also called the Munroe effect). Basically, the hollow charge weaponry that evolved during World War II was developed by empirical, not experimental, means, because the technology did not exist to reproduce the effects of detonation under controlled laboratory conditions.

A hollow charge consists of an explosive that is hollowed out into a cone shape, hence the "shaped charge." with the hollow totally surrounded by explosive and open only on the broad base. When the explosive is ignited, it burns in such a manner that the extremely hot gases are concentrated into a high-speed jet with its axis perpendicular to the base of the cone.

Experimentation eventually developed a series of empirical facts



gave more than lip service to the idea.

Still and all, the introduction of the small-caliber antitank guns did not do the infantryman in the front lines much good, especially since the tactical doctrine that was developed for their use said that enemy vehicles would be engaged only after they had penetrated relatively deep into the defending ranks. Since the antitank rifle was almost useless, and the antitank gun would only be employed in the rear, something was still needed for the front-line infantryman.

## EXPLOSIVES

That something came in the form of a half-century old idea that had been kicking around the laboratories for a long time — the hollow, or shaped,

about the behavior of the jet. The best way to use the effect was in the unspun projectiles, meaning that the round was unsuited for artillery weapons but was ideal for rockets and, later, for missiles. Hollow charge rounds are sensitive to the angle of attack, just like other antitank ammunition, and as the angle from perpendicular to the plate increases, the penetration decreases. Because the diameter of the charge is directly related to its effectiveness in penetrating armor, lining the charge with a metal (copper seems to be best), can greatly increase the round's penetration.

The effect of a hollow charge weapon against an armored vehicle is quite violent. An immensely hot jet of flame penetrates the armor, driving a molten mass of armor ahead of it.



With luck, some part of the tank will ignite under exposure to the heat.

The first combat use of the hollow charge effect against tanks was with the British No. 68 rifle grenade that was fired from a cup discharger out to roughly 100 meters. The effect wasn't all that great on the receiving end — it was the first weapon of its type, after all — but in 1940 it did produce a satisfying bang that worried the attacking panzers and made them less likely to rush in.

Even though this was the first combat use of an antitank hand grenade, the British didn't have a monopoly on the hollow charge effect — the Germans had been using hollow demolition charges for some time and employed them with devastating effect against the Belgian forts.

There had been a number of major and minor conflicts throughout the

world during the interwar years that involved armor. Most were either one-sided (the Italians against the Ethiopians) or shrouded in heavy secrecy (the series of Russo-Japanese border battles), or they involved armor deployed on totally unsuitable terrain (the Gran Chaco War).

But just before the curtain went up for the main event in Europe, the Spanish Civil War gave the Germans and the Italians on one side and the Soviets on the other a great opportunity to test their respective theories of warfare. Tanks were used by both sides, although the Italian tankettes clouded the issue — they were so thinly armored they were called "sardine cans" and so obsolete as to be useless.

About the only thing that could be positively stated about the use of

antitank equipment during the Spanish Civil War was that it wasn't used properly or effectively or in enough mass to draw an accurate conclusion. Only the 88mm anti-aircraft gun really proved successful in stopping enemy armor, a lesson lost on almost everyone except the Germans.

A few months after the Condor Legion paraded through the streets of Berlin on its return home from Spain, the real war began.

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# The Soviets and MOUT



CAPTAIN HAROLD T. STOTT JR.

By 1945, the Soviet Union's military leaders had pretty much reached the conclusion that fighting in cities was a costly and time-consuming business, and for the next 20 years they played down that aspect of war and concentrated their efforts on mass and speed of movement.

But by 1965, the Soviet leaders began to realize that there had been a tremendous increase in the number and size of urban areas throughout western Europe, and particularly in the Federal Republic of Germany. And it seemed to them that this growth of urban areas was not a temporary phenomenon but something

that would continue for many years. Accordingly, they went back to the lessons their armed forces had learned during World War II about fighting in built-up areas and began to integrate those lessons into their doctrine.

Today, although the Soviet military leaders still stress shock action and speed of movement, they know that they will not be able to bypass every urban area in western Europe if they have to go into that part of the continent. Therefore, they are fully prepared to commit their forces to conduct military operations in urban terrain (MOUT).

When the Soviets talk about urban areas, they classify these areas by population and estimated perimeter. For example, an area is classified as large if its perimeter is more than 25 kilometers or if its population is 100,000 or more; average if its perimeter is 15 to 25 kilometers or its population is 50,000 to 100,000; and small if its perimeter is less than 15 kilometers or its population less than 50,000. The Soviets do not consider small villages and clusters of buildings as urban areas but as potential strongpoints to be isolated and bypassed.

Once a Soviet commander whose

unit is on the move has determined that he cannot bypass an urban area, he will launch either a surprise attack or a deliberate attack against that area.

The surprise attack, of course, is his preferred way to secure urban terrain. This requires a rapid, bold movement from the line of march by a strong forward detachment, which moves forward and tries to avoid contact with the defensive forces as it approaches its objective. If it encounters little or no resistance, the detachment will seize the most important areas, such as buildings and key streets, and then split the remaining areas into smaller pockets to destroy whatever enemy forces may be around. It will also organize hasty defensive positions to block possible enemy counterattacks and to prevent the escape of any defenders who may have been overlooked.

Airborne or airmobile forces may be used to support the forward detachment by sealing off the flanks or the rear of the objective.

If the surprise attack fails, the forward detachment will first seize a foothold on the outskirts of the built-up area or will occupy any key terrain that overlooks the urban area and wait for the main body to move up.

## PREPARATIONS

The deliberate attack involves larger forces, requires more preparation time, and uses more suppressive artillery, mortar, and rocket fire. According to Soviet doctrine, the basic unit that will be used to fight in urban areas will be the motorized rifle battalion. In preparing for an attack, a battalion commander will be given as much information as possible about the area. That information will come from detailed reconnaissance, from a study of aerial photographs, and from local civilian sources.

Usually, a battalion will plan to attack along several parallel streets with a frontage of about 400 to 600 meters, or two or three city blocks. It

will usually attack in one echelon, and will be given a first objective — one or two blocks — and a direction of subsequent advance rather than a second objective. The attack will be controlled by timed phase lines that run along streets that are perpendicular to the direction of the attack. These lines serve several purposes: they closely control the rate of advance by giving the battalion a particular time to cross into the next block of buildings, and they serve to insure that the area is cleared systematically. (If such an attack is conducted in conjunction with a nuclear strike, then the frontage of the battalion would be doubled.)

The commander will also consider the varying aspects of command and control. He knows it will be difficult to control his units because the efficiency of his radios will be decreased considerably, and because the limited observation will keep him from getting an accurate picture of the battle. He will try to set up his command post about 200 meters behind his forward positions, and to reduce his units' reliance on radios, he will insist that they use their alternative means of communications as much as possible — runners, vehicles, signal lights, and wire.

Detailed planning is considered the real key to controlling the battle. In contrast to other kinds of offensive operations, the platoon commanders will be thoroughly briefed on the battalion's plans, and large-scale maps will be issued to the lowest levels.

In addition to taking care of the command and control considerations, the commander must decide how he will organize his forces for the coming fight. Normally, he will form company assault groups, which will be reinforced by additional artillery (at least 50 percent of which will be used in the direct fire role), and by engineers (sappers), tanks, chemical personnel, and a variety of equipment for firefighting.

Artillery observers equipped with radios will move out with the forward motorized rifle troops to direct both battalion and higher level fire sup-

port. The amount of artillery bombardment will depend on the enemy's defensive positions and on the amount of structural damage the Soviet commander will want to do in his area. Too much damage can create obstacles, so generally preparatory fires will last from five to ten minutes. Air defense weapons will be used not only to protect the artillery units but also to suppress any enemy weapons that might be emplaced on the upper levels of the buildings.

The engineer platoons attached to the company assault groups must clear the approaches to the area, clear any minefields, clear away rubble and barricades, destroy or open individual buildings, and lay hasty obstacles around command medical posts to protect them from counterattacks. The engineers will have mines, explosive charges, bangalore torpedoes, and some wire and sandbags.

## ATTACK

Once a Soviet motorized battalion commander has taken care of these matters, he can look to his logistical support. In urban fighting, he knows that combat support is particularly difficult. The supply priorities are usually ammunition, water, and food, not fuel. He will see to it that supply points, serviced by vehicles, are established on the edges of the urban areas and that foraging parties are organized to secure food and water supplies. He will probably forbid his soldiers to consume any captured food or drink, particularly alcohol, before it has been checked by his medical personnel for contamination.

The medical personnel will also set up a first aid post with an ambulance vehicle as near the fighting troops as possible, preferably behind the company positions. Of course, the commander will want the ammunition and water trucks as near the fighting as possible, but in most cases, the platoons in contact will send runners to ferry the ammunition and supplies from the vehicles.

When the time comes to attack, the





motorized rifle troops will move into the jump-off area under the cover of supporting fires. The normal Soviet tactic is for the tanks to advance in wedge formation down wide streets or to keep to one side of a narrow street with the infantry and sappers following behind. The supporting fires cease when the infantrymen are 100 to 150 meters from the first defenses. At that point, the infantrymen will charge the first defenses using burst fire from their automatic weapons, and will try to clear pockets of resistance with hand grenades. The tanks will use HE or HEAT from their main guns against enemy concentrations, to blow holes in buildings, or to destroy obstacles. Because the tanks are extremely vulnerable to an enemy's small antitank weapons, they will rely on the infantry to suppress these enemy weapons.

In the initial assault phases, smoke will probably be placed briefly on the defender's positions to conceal the movement of the forward attack troops for as long as possible. If the infantry is slowed by heavy resistance, the tanks and infantry will move in bounds, by fire and move-

ment. If the defense is weak, the infantry mounted on tanks and APCs will rush down the designated streets and dismount on the objectives.

The company assault group will look something like this:

- Two assault teams, each consisting of a motorized rifle platoon plus two tanks.
- A support team, consisting of a motorized rifle platoon with antitank weapons and mortars.
- A fire support team, with its mortars and artillery pieces.
- A sapper demolition group, ready to advance to the front line with explosives or a mine-clearing tank.
- A reserve, usually no more than two infantry squads.

Whenever possible, the infantrymen will use any sewers and underground channels to get under or behind the enemy's position. Above ground, as they move along both sides of the streets, the infantrymen will fire on openings on the opposite side of the street. If a building is the objective, tank or artillery fire will be used to open a breach in a wall, and, then, under cover of machinegun fire, the infantrymen will rush the building and seize the ground floor exits. They

will then seize the staircase and landings and clear the cellar with grenades.

If it is at all possible, the infantrymen will try to gain access to a building from the top. In these cases, they will clear the upper floors first and then will work their way down. Once they have cleared a building, the infantrymen will immediately prepare it for defense and will use it as a base for further operations.

The Soviets expect that the motorized rifle battalion from which these assault groups are formed will lose 70 percent of its strength before it will be replaced.

## PROBLEMS

Although the Soviets appear to have a well-organized plan to overcome a defensive force in an urban area, they expect to face several major problems in any MOUT operation:

- Coordinating and controlling the battle will be difficult.
- Massive artillery fires may cause excessive amounts of rubble, which in turn will make it difficult to main-

tain the momentum of the attack.

- Supply procedures will be difficult to carry out properly.
- Adequate preparation time may not be available, and planning may not be as detailed as it should be.

There is little doubt that the leaders of the Soviet armed forces are prepared to conduct MOUT operations in western Europe. They have looked again at the lessons their predecessors learned at such places as Stalingrad and Leningrad, and while they know that MOUT operations are fraught with difficulties, they are confident that their forces will be able to carry them out successfully.



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# The 20/20 Threat



CAPTAIN G. R. WRIGHT, USMC

***AUTHOR'S NOTE:** A number of studies have been made of the threat the huge Soviet forces in Europe pose to the Western Allies, and most of them place a great deal of emphasis on trying to determine the exact techniques the Soviets will use to carry out their classic offensive tactics: meeting engagement, breakthrough, and pursuit. In this article, I address methods of countering and defeating the Soviet tank or infantry battalions in the meeting engagement. Because of the nature of the meeting engagement, it is presupposed that the opposing forces meet while on the march. The only assumption I make is this – the friendly forces are not destroyed by the enemy's reconnaissance and forward security elements before the meeting engagement occurs.*

Many scenarios of a possible future war in Europe, most notably that detailed in the popular book, *The Third World War: A Future History*, by General Sir John Hackett, describe a first strike by the Soviets during which their forces mass along certain major invasion routes. The tactical luxury of striking first gives any military force a major advantage: its massed forces may outnumber the opposing forces at given points not only by the normally accepted three to one, but by thirty or more to one. Too, the attacker's preponderance of reconnaissance forces gives him a wider ranging and more complete intelligence picture of the immediate situation on the ground.

From their experiences in the latter stages of World War II, the Soviets found that when their tank formations assaulted like-sized or larger German

tank formations immediately on contact they were generally successful. From this they have evolved their current belief that success in meeting engagements is gained by the force that first deploys into a combat formation and then immediately assaults by fire and maneuver.

To the Soviets, the meeting engagement can be divided into three rather simple phases:

- Soviet reconnaissance and security elements advance until they make contact with an opposing force.
- The reconnaissance and security elements immediately assault if their opponent is weak.
- The main body of the Soviet force assaults if the opponent is not weak.

These tactics are standard for a unit of battalion strength. It does not matter whether the battalion itself is





an advance guard for a tank or motorized rifle regiment; its tactics remain the same.

The Soviets' approach march formation is quite similar to the formation the U.S. and other NATO forces use.

The first element is the combat reconnaissance patrol, which usually consists of one tank platoon, normally three T-62 or T-72 tanks. Its mission is to identify the enemy's location, strength, and movement and to report that information to higher authority.

The lead march security detachment follows one to two kilometers behind the combat reconnaissance patrol. This sub-unit usually consists of one tank company (ten to thirteen tanks), one motorized rifle platoon (three APCs), and one artillery battery (three to four tubes, perhaps 122mm self-propelled weapons). The commander of this detachment, if his enemy is in strength, will deploy his units and engage the opposing force with tank and artillery fire.

The main body of the battalion normally travels at a distance of five to ten kilometers behind the security detachment. It includes a tank company (the primary assault force), the battalion headquarters group, one motorized rifle company (minus de-

tachments), and one artillery battalion (also minus detachments). If the battalion is the advance party for a regiment, the regimental commander will select its axis of advance. If it is not, the battalion commander will choose his own route, which will be the most suitable direct path to his objective.

It is difficult to predict the exact strength of a Soviet security element. Soviet tables of organization differ depending on the unit's function. For instance, there are 31 tanks (10 per company plus a command tank) in the Soviet tank battalion that is organic to a tank regiment. But there are 40 tanks (13 per company plus a command tank) in a battalion that is organic to a motorized rifle regiment.

In any case, a NATO unit commander can depend on this: if he is found and fixed by three pieces of artillery, and if he is taking fire from six to ten tanks, he has met a Soviet battalion's security element. In approximately 20 minutes he can expect his unit to be assaulted by some 20 tanks either accompanied or supported by APCs. This is what I call the 20/20 threat, and only through quick, decisive action can the NATO commander save his force from destruction.

Because the Soviets are confident

that the shock action of a well delivered tank assault under such circumstances can overwhelm an enemy force even three times the size of their own units, the NATO commander must immediately take the following actions:

- He must neutralize the Soviet security element.
- He must secure his flanks.
- He must send out his own reconnaissance elements.
- He must conceal his positions.

## NEUTRALIZE SECURITY

The task of neutralizing a Soviet security element will not be easy or inexpensive, but it must be done expeditiously. The units nearest the Soviet security element, if armored, must execute an immediate flanking movement and assault the Soviet force. If those units nearest the Soviet security element are *not* armored, they must still execute a flanking movement and then find defilade positions or cover and try to gain fire superiority. In the latter case, the nearest armored unit then assaults through the friendly forces.

At this point, some readers may be scratching their heads and saying: "That's easy to say, but hard to do." The answer to this criticism is simple — it is embodied in the word *execution*. In the scenario described here, for instance, the NATO unit must know how to engage what amounts to a powerful near-ambush launched against it while it is on the march. If it allows itself to become immobilized for any period of time, it will not be able to deal with what is sure to follow.

## SECURING FLANKS

Although it is not wise to describe the possible frontages or depths of the units involved in a meeting engagement, it is known that the Soviets do identify typical frontages for a battalion in the assault against an organized defense. In a non-

nuclear environment, for instance, the prescribed frontage for a wedge formation, two companies up, one back, is one to one and one-half kilometers. The interval between tanks is normally 75 meters. This indicates that a NATO force preparing to meet an assault by a single-echelon Soviet tank or motorized rifle battalion should deploy to cover by fire a frontage of at least one and one-half kilometers, terrain permitting. It should deploy on either one or both flanks of each expected avenue of approach, as the immediate tactical situation dictates.

Of course, the NATO commander must keep in mind that the assault by the Soviet battalion may be only a prelude to a regimental assault, which can come from any quarter. Accordingly, the Soviet security element must be quickly destroyed.

## RECONNAISSANCE

The NATO force must send out its own reconnaissance immediately after it makes its first contact with the Soviet security element. Mobile reconnaissance units must be sent down any avenue of approach that the Soviet battalion is likely to use, and regardless of cost these units must accomplish their mission of letting the NATO commander know at the earliest possible moment which avenue of approach the Soviets are using. Their mission might also include finding and destroying small Soviet units, such as the security element artillery battery or reconnaissance or forward observer units.

## CONCEALING POSITIONS

Two discomfoting things may

happen to the NATO force if it makes no attempt to conceal its positions, either while they are being established or after they have been established. The first is that the Soviet security element may still have the ability to fire on the NATO force even as it deploys. The second is that the NATO force's actions may be observed by the Soviet combat reconnaissance patrol. Thus, the NATO force may be the one that is neutralized if it does not take certain precautions. In daylight in clear weather, the force's only source of concealment would be an accurate and timely barrage of smoke delivered by NATO artillery units. Accordingly, a tight but realistic schedule of ten minutes or less between first contact and the delivery of the first round must become the established procedure.

There are several "what ifs?" that can be legitimately addressed to this proposed counterpunch to the 20/20 threat. One might be: "What if the Soviet security element lets the NATO security element pass and then ambushes the NATO main body?" The answer is this: Because of their rigid doctrine, discipline, and lack of initiative at the lower levels, the Soviets do not abandon a certain tactic until it has proved a failure. In

the opening stages of a European war, a meeting engagement tactic will not vary from the one the Soviet forces have practiced repeatedly in peacetime. But if Soviet forces should encounter repeated defeats in their meeting engagements, then we could expect them to alter their tactics.

The next question might be: "What if the Soviet combat reconnaissance patrol observes the deployment of the NATO force and forewarns the advancing Soviet main body?" This situation may occur; if it does, the results will not be pleasant. Again, several precautions may prevent it. A smoke screen can disguise the exact location of the NATO force's main body. Then, a NATO reconnaissance unit may locate and destroy its Soviet counterpart. Finally, the NATO commander may have enough artillery support to prevent the Soviet force from doing much with its information.

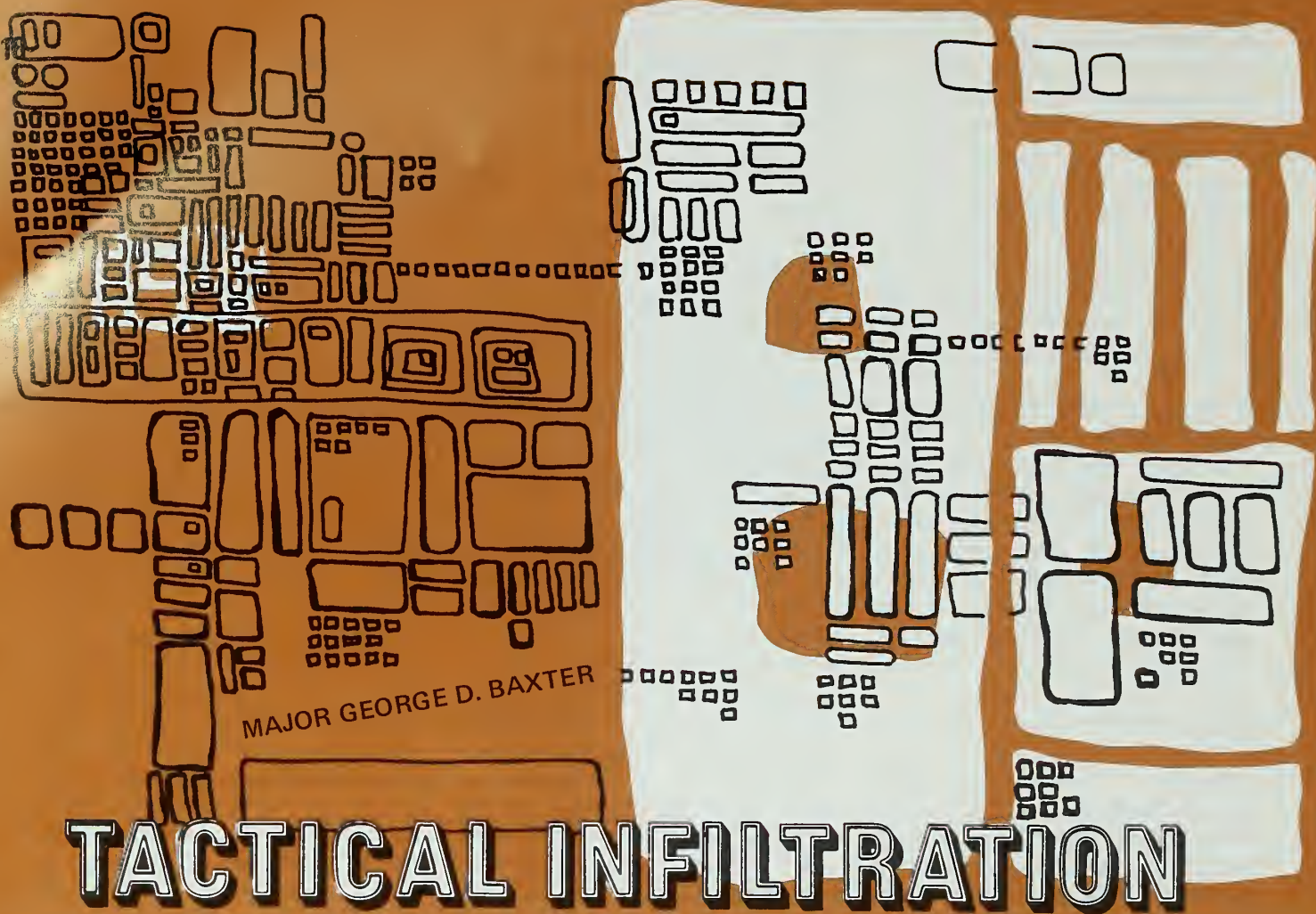
No matter how sound a plan is or how well practiced it may be, it will succeed in combat only if it is executed with speed and determination. In any future engagement with the Soviets, there will be no room for hesitation. If the NATO force or the NATO commander wavers, the battle will surely be lost.



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To some students of mechanized warfare, the life expectancy of dismounted infantrymen on a future European battlefield will be comparable to that of bewildered pedestrians wandering down the freeway at rush hour: it will be measured in minutes rather than hours. Our current doctrine, which consigns our dismounted infantry units to forested and built-up areas where, it is hoped, they will not get into too much trouble, reinforces this impression. Recent developments in weapon technology, though, promise to rescue our foot soldiers from the sidelines and to offer them a vital role on the mechanized battlefield as participants in infiltration and stay-behind operations.

Infiltration tactics have often been used to gain surprise or to overcome deficiencies in strength and firepower, but they have always been something of a

gamble, threatening annihilation for a single misstep. Today, though, infiltration and stay-behind techniques, combined with our present weapons, offer a commander a way to inflict damage on an enemy at great ranges with only a moderate risk to his own force.

Tactical infiltration is infiltration by stealth, a form of offensive maneuver in which an infantry unit moves through or around an enemy force to place itself in a more favorable position to accomplish its mission. To avoid detection, a unit usually carries out this tactic during periods of limited visibility and over rough terrain. (Tactical infiltration in this sense does not include Special Forces operations, envelopment by airborne, airmobile, or amphibious means, or infiltration by deception — the use of special units dressed in civilian clothes or enemy uniforms to penetrate the lines.)

In a stay-behind operation — the defensive counterpart of tactical infiltration — infantry forces gain access to the enemy rear by allowing themselves to be bypassed. (This should not be confused with the Special Forces operation of the same name.)

## ORIGIN

Modern infiltration tactics originated during World War I as an innovation for breaking the trench war stalemate. By 1917, it was clear that neither side had the superiority in infantry or artillery to hammer its way through the other's trench system, although millions had died trying to do just that. Faced with the necessity of winning the war before United States forces could intervene in strength, the Germans found a solution to their problem in a pamphlet written by a French Infantry officer, Captain Laffargue. Laffargue, who coined the term "infiltration" to describe his tactics, advocated forming small assault teams that would seek out weak spots in the enemy line and fight through to the enemy rear, avoiding strongpoints.

The Germans combined these tactics with a short, violent artillery preparation and first used them against the Russians at Riga and later against the Italians at Caporetto with smashing success. Encouraged by these victories, the Germans began training large numbers of their most aggressive infantrymen in the new mobile tactics. Formed into small storm groups and heavily armed with automatic rifles, grenades, flamethrowers, and light machineguns, they were instructed to probe for soft spots, to open gaps for succeeding battle groups, and to work their way as deep into the enemy rear as possible, spreading panic and confusion. They were to bypass centers of resistance, leaving them to be taken by the follow-up forces.

On 21 March 1918, Ludendorff unleashed the Eighteenth Army against the Allied front in Flanders. His storm troopers advanced a then-unheard-of ten miles in 48 hours, destroyed the British Fifth Army and brought the entire British Expeditionary Force to the brink of disaster. Only the lack of mechanized backup forces prevented the Germans from exploiting their breakthrough. Subsequent attempts by Ludendorff to repeat this operation on other parts of the front ultimately failed as the element of surprise dwindled in the face of rising American troop strength.

Despite their narrow escape, none of the Western Allies saw fit to incorporate infiltration tactics into their doctrine. Their adversaries during World War II, however, particularly in the Pacific, made full use of these techniques and it was these tactics, coupled with their superior jungle training, that enabled a Japanese army to defeat a British army twice its size in Malaya and to capture Singapore within two months of the start of hostilities.

Facing stiffer resistance in the Philippines, the Japanese used infiltration tactics on the Bataan Penin-

sula to shatter the U.S. defensive positions anchored on the supposedly impassable Mount Natib. After several frontal attacks had been repulsed, the Japanese infiltrated a regiment across the eastern slopes of Mount Natib to outflank the American II Corps. Simultaneously, a Japanese battalion made its way through the Mount Natib area and appeared on the main supply route behind the U.S. I Corps, which was holding the western end of the line. With its entire position compromised, the allied army had to retreat down the peninsula, abandoning many vehicles and artillery pieces.

Infiltration remained a standard Japanese battle technique throughout the war, although as their capabilities deteriorated, it became less a rational tactic and more an expression of suicidal desperation. And as American forces adjusted to the threat, it became far less potent. Few of the Japanese soldiers who penetrated the tight American perimeters later in the war survived long enough to inflict significant damage.

## FORGOTTEN LESSONS

But, proving that lessons are sometimes forgotten as rapidly as they have been learned, just five years after the end of World War II, enemy forces in Korea used infiltration tactics with devastating effects against woefully unprepared U.S. infantry units. During the opening weeks of the Korean War, North Korean soldiers, many wearing civilian clothing, repeatedly infiltrated U.S. positions. These infiltrators would then set up roadblocks to close off a U.S. unit's supply route. Time and again, U.S. forces, psychologically dependent on continuous battle lines and secure rear areas, would fall back, as much from the threat posed by the infiltrators as from the pressure of North Korean frontal attacks.

The greatest debacle of that war, the defeat of the U.S. Eighth Army by the Chinese Communists along the Chongchon River in November 1950, was brought about mainly through infiltration. Moving in column down drainage lines, avoiding U.S. perimeters on the high ground, the Chinese flowed into the rear of the Eighth Army, eventually settling around the 2d Infantry Division's escape route. Setting up a giant ambush, these Chinese forces inflicted almost 3,000 casualties on the 2d Division in a single day as the latter tried to withdraw to the south.

Later in the war, as during World War II, the infiltration threat diminished as continuous battle lines were reestablished and American units came to realize that they could survive temporary isolation until the infiltrators could be rooted out.

The use of infiltration tactics by the North Vietnamese Army (NVA) and the Viet Cong was also common during the Vietnam War. At times, NVA sappers were able to penetrate heavily fortified bases and inflict severe damage on installations that had repelled NVA battalion and even regimental assaults. Of course, these missions were almost as suicidal as those of the Japanese 25 years





The Japanese used infiltration as a standard technique throughout World War II. Here, on Bougainville in 1944, a United States unit is shown attacking a Japanese force that had infiltrated its lines during the previous night.

earlier, in that few sappers survived the raids.

More pertinent to the future European battlefield, perhaps, was the use of infiltrated artillery forward observers (FOs) by the NVA during its abortive conventional offensive in 1972. Following the fall of Quang Tri and during a static period before the Army of the Republic of Vietnam (ARVN) counteroffensive, radio-equipped NVA FOs frequently infiltrated behind ARVN lines and established themselves on vantage points overlooking ARVN gun positions. The effect of observed 130mm artillery fire on tight ARVN firebases was devastating, at one point causing the abandonment of an artillery battalion position after several guns were lost, and on another occasion resulting in the destruction of several precious 175mm guns. All this was accomplished with minimum effort and risk on the part of the North Vietnamese.

Infiltration techniques seem to have enjoyed much less popularity in their birthplace, the European battlefield. During World War II, only the Russians made extensive use of infiltration tactics. Because of manpower shortages, the Germans were forced to defend the Eastern Front from a series of strongpoints. Although they tried to keep the intervening areas under surveillance, the Russians time and again succeeded in penetrating these gaps, usually traversing the most impassable terrain. Once through the German front line, the infiltration units would usually set up a perimeter in a forest and use it as a base from which to raid German headquarters, supply columns, artillery positions, bridges, and airfields. Many times, the activities of these forces would be coordinated with the conventional frontal assaults made by other units. Although many of these infiltrated Russian units were eventually annihilated, the Russians



looked at infiltration as yet one more way to bring their manpower advantage to bear on the German Army, regardless of the cost.

Tactical infiltration was rarely employed by the U.S. Army during World War II, and then with decidedly mixed results.

One major successful U.S. infiltration operation involved the 36th Infantry Division at Monte Artemisio in Italy on 30-31 May 1944. Although the Germans were retreating northward, their rearguards had effectively blocked the advance of the U.S. Sixth Corps along the main highway to Rome. Given the mission of clearing the town of Velletri and opening the road, the 36th Division commander obtained permission to infiltrate his units over the 3,100-foot high Monte Artemisio, which overlooked the town.

The 142d and 143d Infantry Regiments moved up the mountain in a column of battalions on the night of 30 May, and gained the summit by daybreak on the 31st. The 142d Regiment then turned west to seal off Velletri while a frontal attack by the 141st Regiment on the town completed the maneuver. Velletri fell quickly and several hundred German prisoners were taken. Meanwhile, the 143d Regiment drove northward to capture Monte Cavo, highest point in the Alban Hills, while U.S. artillery FOs on Monte Artemisio called in heavy fire on the retreating German convoys in the valley below. Only twelve 36th Division soldiers were killed in this action.

A perhaps better known example of a U.S. infiltration operation in Europe also took place during the Italian campaign: the U.S. Ranger move against Cisterna during an attempted breakout from Anzio beachhead. According to the plan, the 1st and 3d Ranger Battalions were to spearhead the 3d U.S. Infantry Division's attack by infiltrating up the Pantano irrigation canal on the night of 29 January 1944 to seize Cisterna by first light. A successful operation would put the division astride the road to Rome.

In a single file more than a mile long, the Rangers infiltrated up the ditch, closing to within 800 meters of Cisterna by dawn. Unfortunately, the Germans had already detected them but had allowed them to proceed into a trap. Surrounded and attacked by troops and tanks, the Rangers had only light infantry weapons to use against the German tanks and self-propelled guns. By noon it was all over. Of the 767 Rangers who had started out for Cisterna, only six returned to U.S. lines.

## LESSONS

The lessons that can be drawn from these various historical examples seem to be that:

- Infiltration tactics have been employed most often by infantry-heavy armies that were inferior in firepower to their opponents.
- Successful infiltration depends mostly on the element of surprise.
- Infiltration can produce devastating results against

an unsuspecting, unprepared, or disorganized foe.

- Infiltration is a gamble, more so than most military operations, in which the infiltrating unit wins big or loses big — and losing often means its annihilation.

Admittedly, tactical infiltration combines tremendous potential with great risks. If it is to be useful, therefore, a way must be found to reduce the hazards involved while retaining the ability to inflict significant damage on the enemy. An examination of current U.S. and Soviet doctrine on infiltration should give us an idea of how well we have succeeded in doing this.

Curiously, our roles seem to have been reversed. The Soviets, who practiced infiltration almost continuously during World War II, now mention it only in passing in their military writings, usually as one of many ways to gain surprise. Apparently, with a massive amount of materiel, the Russians no longer see a need for extensive tactical infiltration and rely instead on airborne and air-mobile *desant* operations to spread confusion in an enemy's rear.

On the other hand, the U.S. Army, with few successful infiltration operations to its credit, now embraces the concept. Our current how-to-fight manuals certainly recognize infiltration as a valid technique. In fact, both Field Manual 7-20, *The Infantry Battalion*, and Field Manual 71-2, *The Tank and Mechanized Infantry Task Force*, allot considerable space to the subject.

The question is, of course, whether these techniques can be employed realistically against the Soviets in Europe. The answer seems to hinge on two factors: the Soviet Army's night fighting capabilities, and the ambitiousness of the planned infiltration operation.

Certainly, the Soviet defensive doctrine with its system of platoon and company strongpoints separated by gaps of up to 2,000 meters would appear to offer numerous possibilities for night infiltration in favorable terrain. In addition, in contrast to the usual picture presented of Soviet units relentlessly pressing forward day and night, recent intelligence reports indicate that there may be considerable disparity between the Soviet's night fighting doctrine and their actual capability. According to these reports, Soviet units are supposed to spend about 40 percent of their tactical training time at night. But they seldom meet this requirement, and their actual practice of night combat techniques is sporadic and often unrealistic.

Although the Soviets state that night training is not to be done until the soldiers have fully mastered the basic skills of combat, attaining even this level of proficiency is difficult, given the semiannual troop rotation under which a quarter of each unit's most experienced conscripts are replaced by raw recruits every six months. Reports of Soviet night maneuvers conducted with flashlights, headlights, and even bonfires indicate that the Soviets may have the same difficulties translating doctrine into reality that we have.

Faced with an enemy who may be only partially trained in night operations and whose defensive posture seems to invite infiltration, the only cloud on the horizon



seems to be the kinds and types of night vision devices now in use.

While most of what is known about the Soviet Army's night vision devices is classified, it can be said that the Soviets do have numerous infrared (IR) sights effective out to 300 meters for their rifles and machineguns, as well as IR devices on most of their tanks and armored personnel carriers. Since IR sources can be easily detected, though, the Russians have also developed their own series of image intensification devices modeled on U.S. starlight scopes captured in Vietnam. There are now similar sights for the AKM rifle and RPG-7 grenade launcher. While the effectiveness of these devices is still below that of current U.S. equipment, the Soviets are undoubtedly making progress toward improving those devices.

When the factor of Soviet night vision devices is introduced, some questions arise: Would a U.S. battalion infiltration in Europe, as depicted in FM 7-20, produce a Monte Artemisio or a Cisterna? How many commanders would want to take that kind of gamble? Would conducting the infiltration on separate axes by company or platoon increase or decrease the chances for discovery by presenting a larger number of smaller targets?

Even if the battalion reached its objective, having left its TOWs behind and with only a limited number of Dragons, its soldiers would be sitting ducks for an enemy armored counterattack. Likewise, enemy artillery could exact a heavy toll from an unarmored force before it had time to dig in properly. Indeed, it is likely that the more men sent on the operation, the greater would be the friendly losses in proportion to the damage that could be inflicted on the enemy.

## SOLUTION

The solution to this problem, I believe, lies in employing modern weapons technology to make the infiltration "machine intensive" rather than "manpower intensive." Formerly, we were caught in a quandary — we needed a large number of troops in the objective area to accomplish the mission, but a large force invited premature discovery. Now we have a weapon that will give us the best of both worlds: large destructive potential that can be inflicted by a small unit. This weapon is the Cannon Launched Guided Projectile (CLGP).

The XM712 Copperhead CLGP is a precision guided munition fired from an M109A1 or M198 155mm howitzer; it is capable of being directed by a laser designator to make direct hits on point targets. The entire semi-active laser system consists of two elements: a laser designator, which places a pulse-encoded laser spot on the target, and the Copperhead round, preset to the same code, which responds to the laser energy reflected from the point illuminated and "flies" to the target. The present Copperhead can deviate approximately one kilometer in deflection and two kilometers in range from its

ballistic aim-point to engage a sensed target.

Recent tests indicate that a single Copperhead round has better than a 50 percent chance of a first round hit on a tank-size target, and that two rounds fired on the same target at close time intervals virtually insure a hit. The cannon launched guided projectile represents the greatest advance in artillery technology since the introduction of rifled cannon.

Several laser designators are now under development or in production. And under the fire support team (FIST) concept, each mechanized infantry company will have a 10-man artillery FIST attached to it. Each company FIST will have at least two laser designators.

While the CLGP can be used against targets at long ranges, it is dependent on an FO for two things: the approximate location of the target and laser illumination on the target prior to the shell's impact. Forward observers on the line of departure will rarely be able to provide these for targets that are deep in the enemy's rear.

This is where an infiltration force can come into play. A small group of perhaps three or four men equipped with one or more radios and a laser designator could penetrate an enemy's positions much more easily and with much less chance of discovery than a company or a battalion. Once in place, they could observe the enemy's movements and locate targets in his rear. Their presence would be invaluable for reporting intelligence information, adjusting regular artillery missions, and, what is more important, they could provide laser illumination on targets that were far out of view of the front line FOs. They could destroy targets such as command posts, air defense weapons, artillery pieces, dug-in tanks, and, especially, counterattacking armored formations without undue risk to themselves. Under ideal conditions, an entire enemy tank battalion could be decimated in a few minutes by a succession of Copperheads fired at 10- to 15-second intervals and striking targets illuminated, in turn, by a single laser designator.

## SMALL FORCE

Whereas in the past a small group could accomplish nothing significant in the enemy rear, and a large unit was vulnerable to counterattack once it revealed itself by engaging with its direct fire weapons, a small force can now deal an even heavier blow without ever disclosing its location. In fact, the smaller the force, the greater its chances of success and the fewer risks it assumes.

Infiltrating artillery FOs is certainly not a new idea. What is unique is the effect they can now have. Previously, artillery fire could only harass a mechanized enemy. Now, with the Copperhead round, that fire can be decisive. By infiltrating laser designator-equipped teams, the commander can extend the reach of his guided weapons to their maximum ranges.

The offensive capabilities of these teams can be equally effective in the active defense if they are posi-

tioned where they can help stop an enemy's armored onslaught. The laser designators should be employed from locations that are difficult to suppress. What other area is less likely to be suppressed than the enemy's own rear? When used as a stay-behind force, a designator team could gain access to the enemy's rear areas by being attached to the covering force and then staying in place in a concealed location as the covering force withdrew to the main battle area and the enemy advanced past its position.

Since the Soviets stress rapid offensive movement and remaining mounted as long as possible, they are unlikely to sweep every woodline and building to discover three or four troops. After the lead elements had passed, the stay-behind force could go to work. By calling in intelligence information and illuminating targets for Copperhead rounds, it could inflict damage out of all proportion to its numbers. The team could also call in observed fire with ordnance such as the M483A1 dual purpose improved conventional munition (DPICM), which is effective against armor because of the 88 shaped charge submunitions each round contains.

Our laser capability is not just a technologically improved antiarmor ambush; it also represents a doctrinal advancement. In the past, a tank-killer team would destroy one or two vehicles and then would have to fight for its life, but our stay-behind forces could continue to inflict damage as long as they had targets in view. Now the team can accomplish all of this without disclosing its location and without being subjected to the smoke and suppressive fires that undoubtedly will be raining down on the front lines.

The greatest single threat to this concept — enemy radio jamming — could be reduced significantly if each team could enter any available unjammed artillery or infantry net within its brigade area. Standard codes, directional antennas, shortened transmissions, and the new digital message device (DMD) would also help to defeat an enemy's direction finding efforts. A small "no fire area" drawn around each team would protect it from friendly fires.

## RISKS

There is, of course, the matter of survival and morale, since one man's stay-behind trooper is another's potential prisoner of war. There are grave risks involved in operating behind enemy lines, but sitting in the front lines with a hurricane of artillery fire waiting for the onslaught of hundreds of armored vehicles is not an encouraging prospect either. The modern battlefield will be a dangerous place and operating in the enemy's rear areas may be

no more hazardous than being in the main battle area.

To those who have a mental picture of a lonely infiltration team, long since bypassed and out of radio and artillery range, trudging westward down some dusty German lane as the front recedes before it at 60 kilometers a day, I can only say that if that rate of advance continues, the team will soon have plenty of company — most of the United States Army, Europe. Certainly there is a chance of being left behind in the rush, but in few other ways does such a small force have the ability to inflict heavy losses on its opponent. If the members of a laser team can destroy their share of enemy armor and artillery, they can avoid being abandoned. It seems worth the risk.

Some may question the ability of the average American soldier to accomplish this type of mission. But the successes of many of our units in Vietnam indicate that, while the suicidal infiltration missions on the Japanese or Soviet model are foreign to the nature of our GIs, they are most resourceful and courageous.

In that conflict, American troops operated effectively in small groups behind enemy "lines" for extended periods. Given the proper training and leadership, selected personnel from almost any rifle company should be able to carry out infiltration missions.


In Europe today we face an enemy who is overwhelmingly superior in armor and firepower. Just as in the past, infiltration offers opportunities for a weaker, infantry-heavy force such as ours to gain an advantage over a more mechanized opponent. Soviet doctrine is not geared to counter this kind of threat. Although the classic method of infiltrating a large force to seize and hold terrain may be too dangerous to use in most circumstances, a small team can now inflict major damage on its enemy without necessarily sacrificing itself. The laser target designator and the precision guided munition take much of the risk out of infiltration while preserving its potential for severely disrupting an enemy force.

Infiltration and stay-behind operations, combined with laser designated guided munitions give the commander one of the best means at his disposal for extending the reach of his weapons. To ignore infiltration is to deprive ourselves of a potent weapon that attacks an enemy where he is least able to defend himself.

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# OPERATIONS IN THE ENEMY REAR

**PART I** C. N. DONNELLY

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The USSR is committed to the destruction of capitalism and the establishment, worldwide, of its own brand of socialism — eventually to develop, it is hoped, into communism. Any and every political tool will be employed to accomplish this end including, where it is convenient, war.

War, however, can be a risky tool to use: for example, a strategic nuclear war with the USA would be so devastating for the USSR that it would probably result in the total destruction of the fabric of Soviet society. A war of *this* type is therefore to be avoided at all

costs. Similarly, the USSR holds, all wars which are likely to escalate into global nuclear wars must also be avoided. A general war in Europe, initiated by the USSR, might well be just such a war.

It is generally held by most Western analysts known to the author that Soviet policy towards Europe is intent on a gradual increase of Soviet influence, avoiding armed conflict.

By this we must stress that we mean armed conflict *in* Europe. Warfare waged by the Soviet bloc in the Third World does not, as has been proved in Angola and Ethiopia, necessarily lead to dangerous confrontation. Such warfare might serve very well to weaken Europe by denying her access to essential supplies of raw materials. If this does prove to be an effective way of reducing European (and possibly US) strength, then this policy will most certainly be exploited by the

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USSR until the West takes measures to prevent it.

This would encompass a withdrawal of US influence; the slow weakening of European nations; the negation of any unifying trends in Europe; and a gradual shift of more extreme left-wing forms of government. The final result in the long term would be an emascuated Europe completely pliant to Soviet wishes.

If at some time during this evolutionary process war does break out in Europe, then, as far as is possible to foresee, it will be the Soviet intention to wage the war with conventional weapons and to win it very quickly indeed in order to make escalation less likely.

As nuclear buttons are pressed in the first place by politicians and not soldiers, however, it will be essential for the Soviets not just to defeat NATO armed forces in Europe but also to destroy the will of NATO politicians to unleash nuclear war in retaliation to invasion. It is the total political collapse of the key NATO governments, or the physical destruction or neutralization of the machinery of national and international politics, that the USSR must seek to accomplish in as short a time as possible. A direct Soviet assault only upon NATO military formations, however reliable as a means of destroying NATO armies, is unlikely to bring about this essential political collapse quickly.

This requirement is reinforced by certain basic tenets of Soviet military doctrine. The area (that is, both the actual terrain and the military and political organization therein) that stretches from the forward lines of combat troops right back to the national capital is what is understood by the Soviet term "rear." It is in this area that Soviet plans envisage the maximum amount of disruption in order to bring about a rapid military-political collapse. It is with the Soviet Army's tactics designed to create the required disruption in the rear (and thus help engineer this collapse) that this article is concerned.

## STRATEGIC REQUIREMENTS

The primary strategic requirement is for a rapid advance by the ground forces, coordinated with naval and air forces, so as to neutralize both the military and political-economic systems of their opponents. Surprise, shock and pre-emption in deployment will make by far the greatest contribution to the success of such an operation. The first aim of Soviet strategists and tacticians will be to launch operations designed to insure surprise; to increase the initial paralyzing shock; and to prevent or hinder the enemy's mobilization and deployment. On the enemy completing, in whole or part, his mobilization and deployment, the aim will then be the reduction in the efficiency of the defense by disruption in the military rear, and the eroding of political will by disruption of the national political and economic system. In practice, both the stage of attempting to prevent effective deployment and the stage of attempting to undermine the stability (and hence the

effectiveness) of the defense are likely to overlap.

Moreover, the tactics employed by the Soviet army elements involved are likely to be similar during both stages. By creating such disruption, the Soviets hold, the advancing main forces are assured of a rapid, uninterrupted and hence successful advance. Operations in the enemy rear will not in themselves be of sufficient scale to bring about a Soviet victory; their task is merely to reduce the enemy's capacity to resist, thus making it easier for the main forces to carry out their essential role.

The range of threats which the Soviets would bring to bear on NATO's rear is as follows:

- (1) Espionage, subversion and sabotage from within.
- (2) Small diversionary groups, sabotage and reconnaissance squads and raiding parties, employed on a wide scale.
- (3) Large-scale landings by airborne and naval forces to carry out raids, seize key objectives or attack in the defender's rear.
- (4) Penetration into the rear by forward elements of the ground forces, to carry out raids, seize key objectives or attack the flank and rear of the enemy defensive positions.

(5) Deep penetration by large formations into NATO's operational and strategic rear, with the objective of reaching strategic targets.

In all cases, the air and naval elements would comprise the "third dimension" of the battle, supporting the efforts of the ground forces and closely coordinated with them.

It is not within the scope of this article to examine the "fifth column" activities under (1), nor those under (5), which fall into the domain of operational art. This is not to say that these phases of war are any less important than those to be examined below. They are not, and they must not be omitted from an overall assessment of the threat.

Targets in NATO's rear are given below. As far as is possible to say, the order of priority given is that allotted by the Soviets themselves. The actual chronology of engagement may not, of course, correspond to actual priority. For example, while nuclear weapons are always the most important target, the first targets to be hit might well be radar and communications establishments so as to prevent a warning being given.

## PRIMARY TARGETS

- (1) The physical incapacitation and, if possible, actual destruction of NATO nuclear and chemical warheads, means of delivery, and related command, control and guidance elements — both strategic (e.g., *Polaris* submarines in bases) and tactical (e.g., *Lance* missile systems).
- (2) The interruption and disruption of NATO political, strategic and tactical command, control and communications elements. This includes the destruction



not only of equipment and organizations but also of personnel in key appointments.

(3) The physical incapacitation of certain, but not necessarily all, electronic warning and reconnaissance equipment; radars, EW equipment; air defense equipment of all types; and possibly BMEWS. (Some US analysts consider that BMEWS might not be attacked in event of the USSR wishing to assure the US that no strategic missiles would be launched during a European war.)

(4) The capture of key airfields and ports to prevent reinforcement or redeployment, particularly by the US; the destruction or neutralizing (by mine, etc.) of airfield and port facilities not required intact by the USSR, plus that of railway and key road junctions important to mobilization plans.

(5) The disrupting of key industrial targets and facilities — power stations, oil refineries, military-electronics industries, etc.

#### TARGETS OF ROUGHLY EQUAL PRIORITY, DEPENDING ON THE TACTICAL SITUATION

(6) The destruction of troops in garrisons.

(7) The destruction of logistic installations (e.g., fuel supply terminals and fuel dumps, ammunition dumps).

(8) The destruction or interruption of transport systems, traffic control posts, road and rail bottlenecks, bridges and tunnels.

(9) The seizure of dropping zones and tactical loading zones for subsequent larger landings.

(10) The seizure of key areas of terrain — river and

coastal bridgeheads, defiles, command ground, canal sluice and lock gates, bridges, etc. — essential for the rapid continuation of the advance by the main forces.

(11) The capture of prisoners for interrogation and of documents or items of equipment for examination, leading to the acquisition of knowledge about enemy locations, plans or capabilities.

#### FORCES AVAILABLE TO THE SOVIET COMMANDER

The Forces involved in operations in NATO's rear would be drawn mainly from three sources: Soviet and other Warsaw Pact airborne assault units, and long-range reconnaissance subunits from motor-rifle and tank formations; Soviet, Polish and East German naval industry; and designated all-arm units and subunits from ground forces formations.

Soviet military doctrine has a single concept of putting troops into the enemy rear area, whether by land, sea or air; by boat or ship; on motorbikes, skis or BMP; by helicopter or parachute. The term used for such a body of men, no matter how they travel to their target, is a *desant*.

#### AIRBORNE ASSAULT FORCES

The USSR is estimated to have eight airborne assault divisions of 7,000 to 8,000 men each, plus several special-purpose forces of regimental size or less (diversionary "brigades"). The airborne divisions are dis-



persed throughout the various military districts of the USSR. There is probably a diversionary "brigade" in East Germany. These airborne forces, while in principle part of the ground forces, in fact fall directly under the High Command and, as a consequence, will be allotted tasks of strategic importance as a first priority. Some may be allotted to Front commanders for operational or tactical tasks, others being maintained as a High Command reserve. Their official strategic mission was defined by their late commander, Army General Margelov (replaced in January 1979 by Army General Sukhorukov) as being "operations in coordination with the main arms of the ground forces so as to insure the high speed and continuity of the offensive."

The Divisional Commander has a long-range reconnaissance company which engages not only in passive observation but also in aggressive reconnaissance tactics such as ambushes, snatch groups, etc.

All the other Warsaw Pact armies maintain both specialized air assault forces and long-range reconnaissance troops. The East German Army has at least one battalion of airborne troops plus at least a company of long-range reconnaissance troops in each of its six divisions, about 1,000 active troops in all. The Polish Army has an airborne assault division plus long-range reconnaissance companies for each of its 13 motor-rifle or tank divisions, about 8,000 active troops in all. The Czech Army has an airborne assault regiment plus a large number of long-range reconnaissance troops, possibly up to 4,000 trained air assault or reconnaissance troops in all. Some elements of these forces are thought to have a diversionary role.

Thus in central Europe, the Warsaw Pact has available more than 20,000 regular troops specially designated for behind-the-lines operation. These include substantial numbers of diversionary squads of four to ten men each, mainly Soviet but probably including Poles, Czechs and East Germans. To these 20,000 must be added at least three airborne divisions from the Western USSR.

The USSR probably does not have sufficient military transport aviation to move and drop much more than one airborne division simultaneously. However, it appears unlikely that anything over a regiment would ever be deployed at once due to the extreme vulnerability of larger drops. By ferrying troops, forces could nevertheless be built up very quickly, and Aeroflot aircraft would be used where hard landing facilities, such as captured airports or suitable stretches of autobahn, were available. Other Warsaw Pact countries are to some extent dependent on the Soviet air-drop capacity, but all have civilian airlines which would, in event of war, fulfill the same function as Aeroflot.

The most spectacular growth in recent years has been in Warsaw Pact (particularly Soviet) helicopter lift capacity. There are sufficient helicopters in the Group of Soviet Forces in Germany (GSFG) alone to lift about ten battalions of motor-rifle troops, and one

or two such battalions might well be employed in assaults into NATO's rear.

It would be prudent, at this point, to inject a cautionary note. It is simple arithmetic to add up the total numbers of WP troops that are trained to be deployed into the enemy rear, and to assume that things will go well, all air transport will be allotted to their use, etc. One will thus arrive at a number which is an absolute worst case rather than a realistic estimate. During the Manchurian campaign of 1945, only 20 percent of air transport sorties were allotted to airborne drops and this the Soviets hold up as an example of a high percentage.

There is, of course, no way of knowing how valid this figure would be in a future war, but it is useful to realize that there are often priorities for air transport other than landing paratroops. What is more, examples abound throughout the 1941-1945 war of the airborne troops being used as elite but conventional infantry. As a result, it is quite possible that only a certain percentage of the airborne-capable forces will be considered by the Soviets for offensive use against NATO.

## SOVIET NAVAL INFANTRY

The Soviet Naval Infantry are comparatively few in number — about 12,000, split between the four fleet areas, and equipped with about 100 large amphibious craft and 50 assault hovercraft. To these must be added the Polish Sea-Landing Division, an East German regiment and a further 25 large amphibious craft based, of course, on the Baltic.

The tasks of the naval infantry are rather more restricted than those of the airborne forces. Their principal task is to act as the assault force to seize a bridgehead so that the main forces (of motor-rifle and tank troops, etc.) can be landed safely from warships or commandeered merchant ships. Such large-scale *desant* operations would be put in for a variety of operational reasons — to hit the enemy in the flank and rear and thus speed up the advance of the main ground forces from the East; to seize port facilities and deny these to NATO for reinforcement, while retaining them for their own use; to seize control of vital bottlenecks essential to naval security, such as the Skagerrak and Kattegat. In addition to this role as a spearhead of the assault, the naval infantry would certainly provide men for commando-type raids on coastal areas, employing the same tactics as the airborne forces. Their targets would presumably be mainly of coastal and of a naval significance, but they would also be directed against land targets where appropriate.

## SOVIET TACTICS FOR OPERATIONS IN THE ENEMY REAR

During a period of international tension which is al-



most certain to be the precursor of any war, the USSR will, by political pressure, persuasion or threat, attempt to undermine the will of the potential enemy. All possible means of subversion will be employed to cause dissatisfaction and discontent so as to divorce the sympathy of the population from the authorities, and by covert means upset the stability and smooth functioning of the society.

To paint a picture of disruption and subversion is not to be a scaremonger, but to emphasize that this is the type of situation which the Soviets would *like* to achieve, because it will increase their chances of a quick victory. If, as is quite possible, they clearly fail to disrupt the fabric of the enemy society by their subversion, it will be a considerable deterrent to them, in their eyes weighing heavily against their likelihood of rapid success.

### DEPLOYMENT OF STRATEGIC DIVERSIONARY GROUPS

The first airborne or seaborne assaults would be deployed at the most only hours before the launching of the full-scale offensive, so as not to alert the defenders. At the outset of the Manchurian Operation (August 16-27, 1945), the theater commander deployed against strategic targets some 20 airborne assaults of 35-40 men each, drawn, it would appear, from a special unit of about 600 men. The groups were dropped close to central Manchurian cities (including Harbin, Mukden, Chanchun and Port Astur), on the Lyodun peninsula and in North Korea with the task of causing as much disruption as possible by sabotage and raids against strategic points, military and industrial targets. At the same time, fast MTBs were used to drop small teams of men, in boats and as frogmen, in all the North Korean ports to disrupt the port operations by, once again, sabotage and diversion.

(The Soviet term for specialist independent units created for such tasks is *brigada*, the same term they use to translate "brigade" when referring to NATO infantry brigades, etc. Such *brigada* are always an elite force, never very large (200 to 700 men), and always maintained as a high-level reserve. L. I. Brezhnev commanded a "shock brigade" at one period during the war, composed of handpicked men of intense, even fanatical, political conviction. They were commonly used to stiffen an assault against a particularly stubborn enemy. "Recce-diversionary" brigades were first established in the Soviet Army on March 27, 1943 by the Commander of the Western Front.)

The teams used were small, and their employment was not on a large scale. There is no evidence that they

were able to create a significant level of destruction deep in the enemy rear. What they did do was to create panic, particularly among the Japanese military authorities in central Manchuria, which greatly increased the shock effect of the Soviets' massive surprise attack.

We consider that this is a valid historical model for the initial employment of diversionary troops in any future war. The actual damage that a small team of men could accomplish might, with luck on their side, be moderate but would probably only be slight. However, the shock to national morale of an attack made on, say, the Ministries of Defense in Bonn, the Hague or London, or of the assassination in their own homes of senior politicians, industrialists, financiers, etc., in the first hours of the war would be disproportionately great in comparison to the small cost of attempting such an operation.

In addition to "shock" political targets, such teams would also be targeted against communications centers, both civilian and military; command posts of the armed forces; radar and EW sites; and, of course, as a priority, against any nuclear weapons system accessible at such an early stage in the campaign.

The Soviet conviction of the value of deploying this type of group stems not only from their own successful use of such forces against both the Germans and the Japanese during the last war, but also from their painful experience of German diversionary teams behind their lines, particularly in 1944-1945. Although these teams were small in number, they created such communications, supply and morale problems in the Soviet rear that initially one and later two entire NKVD regiments had to be allotted to guard the rear of each Soviet field army.

During the last war, the Soviet diversionary groups made extensive use of the partisans in their area of operation. As a rule, they never divulged their plans or missions to partisans for fear of treachery, but they used partisans who knew the area as guides to help them reach their targets more safely, and they coordinated their sabotage missions with those of the partisans. It is to be expected that in a future war Soviet and East German agents in Western Germany would be employed in this partisan role as guides or sources of local information.

Diversionary troops in the first wave of the offensive will have to have a very high standard of training indeed, as well as a high degree of political reliability. It is quite probable that many of them will speak NATO languages, and they may well have NATO uniforms available to them for deception purposes. (*To be continued.*)





# A SOVIET VIEW



COLONEL A. AKIMOV

## A Tactical Exercise With Field Firing

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A tactical exercise with field firing may be unilateral or bilateral. In the first case fire is delivered by one side, the other being designated only by the layout of training targets.

There are certain specific features in preparing for and conducting a tactical exercise with field firing. Apart from the officials present at an ordinary exercise, a target situation officer and a fire umpire are appointed. When fire is delivered by artillery or mortar subunits, a control group (groups) is provided, and operators, simulators and signalmen are appointed for target designation and fire simulation. A duty cordon is detailed to ensure safety of firing.

Preparation for a tactical exercise with field firing (as for one without it) starts with specifying the initial data.

This is followed by working out the plan of the exercise (generally on the map). Unlike the plan of usual exercises, it indicates which subunits are taking part in the field firing, ammunition consumption rates, firing area, the enemy grouping and nature of his combat actions, the main direction of the firing and rate of opening and ceasing fire. All these data form the basis for working out the target layout (Figure 1).

Producing the target layout is a most important aspect of preparing for and conducting a tactical exercise with field firing. It is worked out taking due account of the tactical concept, the organization and nature of combat operations of the simulated enemy, the manpower and equipment allotted for the field firing, the subunit commanders' likely decisions and real actions.

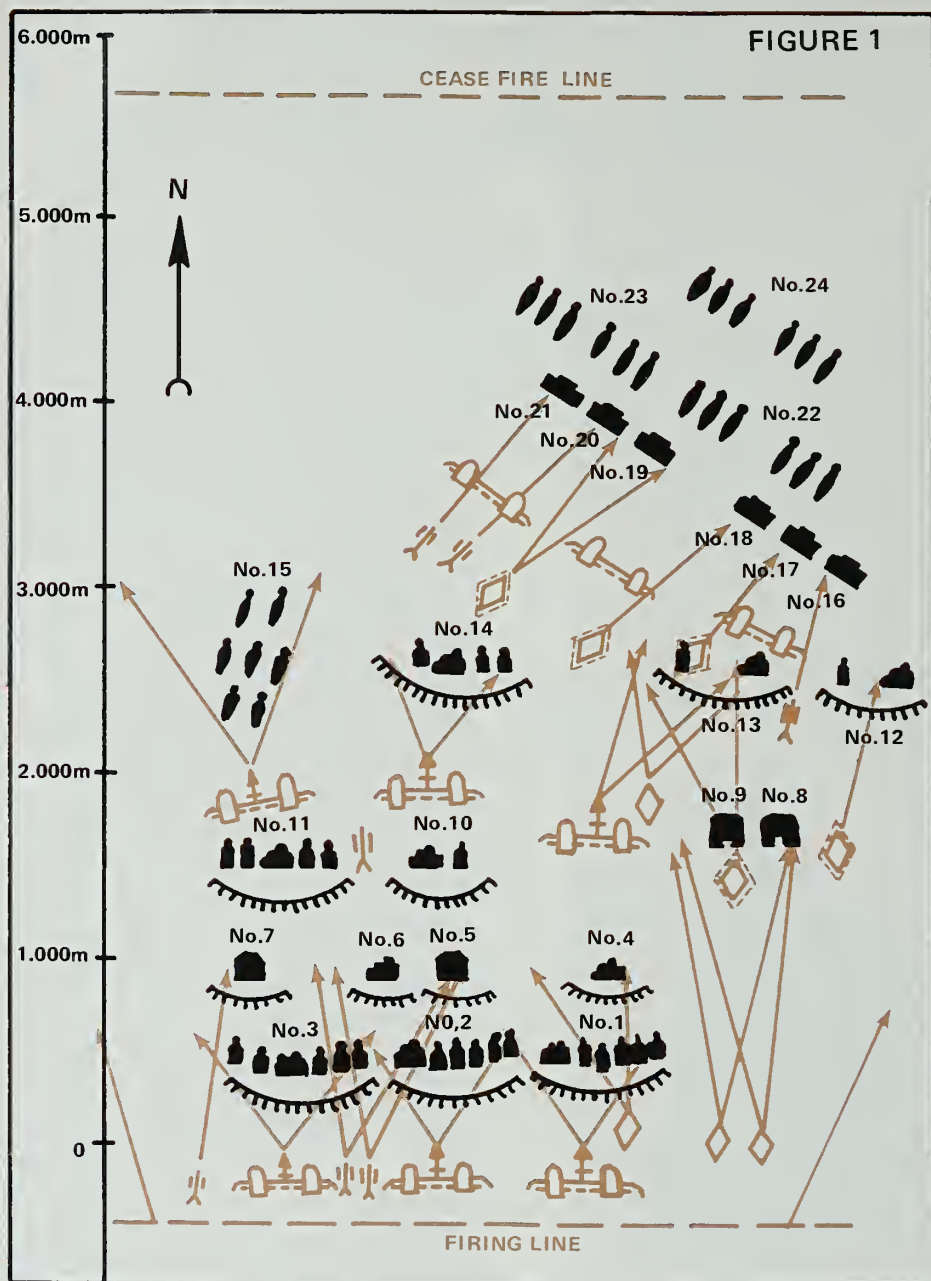
The target layout must enable subunit commanders to acquire firm practical skills in organizing and conducting reconnaissance, in evaluating and selecting targets, types of weapons and firing methods, in assigning firing missions, in observing the results of the firing and in fire adjustment.

The targets selected must correspond to the purposes for which the given subunit is used in combat. For instance, for tanks models of armored targets, antitank guns and ATGMs are set out, for artillery firing from indirect positions a mortar battery and a counterattacking group of tanks and infantry are simulated, and for AA subunits firing at aerial targets use is made of radio-controlled targets.

The efficiency and instructive value of a tactical exercise with field firing largely depend on the verisimilitude of the target situation. That is why targets must appear unexpectedly, they must move, fire, and fall when hit. The targets' dimensions and shape must correspond to those of real targets.

Enemy automatic small-arms fire is generally imitated by blank cartridges fired from simulation submachine guns, one submachine gun for





two to three groups of targets. Gun, tank and grenade launcher fire is best imitated by setting off explosive charges, simulation grenades and smoke-puff charges.

The target layout indicates the number of targets and amount of ammunition, location and numbering of targets, sequence and duration of target display, firing and cease fire lines, methods and duration of target illumination at night, location of control posts and organization of communication for control of the target situation.

Proceeding from the tactical concept, the layout shows in the first place the basis of the target situation which will be simulated during the firing. For example, during a company tactical exercise with field firing, when breaking through the "enemy" defenses from march column, the layout shows a motorized infantry platoon of the company holding defenses on the forward edge, and a strong point up to platoon strength of this company's second echelon. Simulated in the depth of the defenses is the platoon strong point of the second echelon company of the battalion, and also the line from which the counterattack of the reserve is simulated.

Besides, it is practicable to indicate one or two withdrawing groups, preferably behind the company strong point on the forward edge.

Calculating the required number of targets is also of considerable importance. In making the calculation, account should be taken of the enemy's organization, his likely losses in preceding battles and during the fire barrage. Besides, the amount of ammunition and the number of firers and types of weapons should also be reckoned. At a tactical exercise with field firing, in which a motorized infantry company reinforced with a tank platoon takes part, 80-100 targets are normally displayed for small arms, 10-12 for tanks, and 5-10 for artillery.

Here is an example of how the number of targets for a reinforced motorized infantry company in the offensive can be reckoned. The estimate is generally made by areas (elements of enemy battle formation) with due consideration for the nature of the combat operations during the company offensive. There are three areas in our example: the company's platoon strong point on the forward edge, the strong point in the depth of this company's defenses, and the strong point of platoon strength of the battalion's second echelon company.

A platoon is holding defense in the first area. The number of the enemy troops and fire weapons are calculated in accordance with the organization. If we assume that enemy losses during preceding battles amounted to 20 percent and that he lost another 25 percent during the barrage, the platoon's defense will be simulated by approximately 27 targets, including 15 soldiers with carbines, five machineguns, three antitank grenade launchers, two APCs and two ATGMs.

The target situation is created on the basis of objectives. One objective may include several targets. One target may designate an important objective. A motorized infantry section with its armament will constitute an objective. Such objectives as tanks, APCs, ATGMs, guns, etc. are designated as separate targets. A motorized infantry platoon includes three sections, i.e., three objectives, plus APCs, ATGMs and 12.7mm machineguns — another six objectives. Thus, 27 targets may be divided into nine objectives. The number of targets for other areas is calculated in a similar manner. Objectives are numbered from right to left, from the forward edge to the depth.

Ammunition is supplied for each type of weapon separately. To determine the necessary amount of ammunition, a special table is drawn up, containing the names and numbers of targets, the number of targets in each objective, type of weapon, firing position, average firing range, amount of ammunition for firing at single or all targets of a given objective. On the basis of these data the total amount of ammunition for the entire field firing is determined.

The quantity of ammunition is determined on the basis of tabulated consumption rates. For instance, to destroy a machinegun objective designated as a single target, use is made of a light machinegun fired from a kneeling position, the average range being 250 meters. According to the table, seven cartridges are required to destroy the given objective.

Consumption of ammunition for artillery and mortars is determined on the basis of the Terrestrial Artillery Gunnery Course.

The procedure for target showing is indicated depending on the enemy's tactics and commanders' decisions. Proceeding from this, the exercise director determines the time for which targets should appear, the number of appearances and the intervals between them. Targets are usually shown for one and one-half to two times as long as the time



allotted for training exercises. This is because firing is carried out by subunits, and additional time is therefore required for detecting and assessing targets, assigning missions, designating targets, and concentrating fire and shifting it from one objective to another.

The targets are shown several times and long enough to enable the men to detect and attack them, and for commanders to assign missions to their subordinates. During the attack unhit targets are shown uninterrupted until the infantry reach the cease fire line (up to 200 meters). Then the unhit targets are taken away and displayed again when the attackers have approached the hand grenade throwing line.

The conducting of tactical exercise with field firing has the following specific features. When subunits approach the firing line, they are stopped and given ammunition. Then the all-clear signal is given. Simultaneously, the subunit commander specifies the mission and reports his decision. After the umpires and the trainees have reported their readiness for firing, the exercise director gives the command to advance to the firing line. When the subunits have reached this line, signals are given for the personnel to load their weapons and start firing.

To achieve good results in working up training questions, and to make the simulation of combat operations as instructive as possible, the trainees must not be informed in advance of the location and time of target appearance. As showing of targets is effected on the basis of commanders' decisions and subunits' actions, relevant alterations should be made during the exercise in the preliminarily planned sequence of target showing.

When firing, care must be taken to hit the most important targets first.

During the exercise the exercise director sees to it that firing is conducted on officers' and sergeants' commands with due account for the assigned missions, the number of targets detected and fire capabilities of friendly fire weapons. Besides, he ensures, personally or through the staff or umpires, that the trainees do not fire from shorter distances and unauthorized positions, and that the safety measures are strictly observed. Should the established rule be violated, the cease-fire signal is immediately given. The fire umpires must stop the firing without delay and report the situation to the exercise director.

Field firing ends when subunits reach the cease-fire line. They stop, unload their weapons and hand over the unused ammunition to the ammunition supply depot.

The assistant of the exercise director for the target situation organizes a checkup of the results of the firing and reports them to the exercise director. Then the terrain is cleared of unexploded shells, grenades and simulators.



LIEUTENANT COLONEL THOMAS E. STEPHENS  
COLIN M. MacLACHLAN



# FUNCTIONING ON CAMPUS



The Army officers who are assigned to ROTC duty in the 1980s will face many exciting challenges. If they are to meet those challenges successfully, they must be prepared to make a major psychological adjustment to an environment that is almost totally different from the one with which they are familiar. The academic environment is not an easy one to understand, and some officers find it difficult to adapt their leadership qualities, which are effective in a military structure, to campus life where leadership, though equally necessary, is exercised quite differently.

Many new ROTC instructors, faced with operating in what seems to them a thoroughly confused environment, tend to react with apprehension, which in turn gives them feelings of insecurity and inferiority. This causes them to withdraw almost completely from the general campus community and to create a mini-military society that revolves around the ROTC unit, which is itself isolated from other campus organizations and activities.

The backgrounds of the officers who are assigned to ROTC duty are generally similar. These men have been almost continually exposed to a clearly regimented structure that places a high value on individual discipline within the group. In both command and staff functions, group activity — as distinct from individual activity — has dominated their professional lives.

In a military organization, great emphasis is placed on superior-subordinate relationships that extend clearly and unambiguously from the top to the bottom. An individual is expected to adjust and function in accordance with that structure. The Army officer understands the organization and knows the consequences of failure and the rewards of success within it. The well-understood pathways to success and the feeling of accomplishment that comes with recognized and meritorious performance engender a sense of security and group loyalty.

In sharp contrast, ROTC duty lacks the structural regimentation of a traditional military unit. Because of the decentralized nature of authority and influence on campus, for example, the military hierarchy of rank is less able to provide support for ROTC cadre members in their dealings with cadets and other students. Accordingly, an ROTC instructor's individual personal qualities, as opposed to group activities, become critically important and necessary if he is to perform well. Although an officer assigned to ROTC duty should remain proud of the rank he has attained, he must realize that this visible military manifestation of vertical control has little significance in the academic community.

Before a newly assigned officer can begin to make the adjustment to the academic community, he must try to understand the university environment. A university has two important operational structures. The most obvious of these is the administrative hierarchy, which is headed by a president or chancellor, under whom are a vice president or provost (chief academic officers), deans, associate deans, directors, and finally departmental chairmen. The administrative structure, with its clear lines of authority and status, is usually easy to under-

stand. And, in general, the administration supports the ROTC program and appreciates the financial contribution it makes to the university's budget. As a result, relations with the administrators present few problems.

The other operational structure is within the faculty itself, and it is not easy to understand. And because the faculty members are not directly concerned with financial or budget matters, they are not impressed by the ROTC program's financial contribution to the college or university. The relationships between the members of the ROTC department and the faculty, therefore, must depend primarily on intellectual and social factors, which are much less concrete than financial ones.

The faculty structure is important to the success of the ROTC program, though, because it does influence the number and quality of the cadets who will apply for admission into the ROTC program; it will also exert considerable influence on how many cadets will remain in and complete the program. Fortunately, the structure is not complex, just different.

The Army officer on a university campus must realize that the faculty members consider themselves to be *the* university. This is an ancient attitude and one that gives the faculty the power to set university standards, establish degree requirements, determine the curriculum offerings, and dictate all of the other aspects of university life that are related to the primary function of any university — the pursuit and transmission of knowledge.

While they see themselves as a separate and distinct group, the faculty members are also employees of the university, and an outsider might assume they are therefore responsible to the administrative hierarchy. In fact, this is true only to a limited extent. On many campuses, academic tenure protects large numbers of faculty members from being fired for all but the most serious offenses. The purpose of tenure is to protect the right of each faculty member to take an intellectual position on any issue without fear of intimidation by the administration. Occasionally, an adversary relationship develops between the two structures and becomes a serious problem. Nevertheless, the independence of the faculty and its protection from administrative pressure are important to the intellectual vitality of a university.

Within the faculty there is an important rank structure, which, in ascending order, is instructor (usually non-tenured without a Ph.D.), assistant professor (usually non-tenured, though eligible for future tenure consideration with a Ph.D.), associate professor (holds a Ph.D. and tenure, serves on important committees, often as chairman, and may eventually move up to full professorship), and professor (who by virtue of longevity or a distinguished record is at the top).

## INFLUENCE

While these differences may seem important, those on the lower end of the scale seldom see themselves as intellectually subordinate to those higher up. Neverthe-



less, since senior full professors make the decisions on whether or not to grant tenure and promotion to those in the lower ranks, they are usually conceded more influence in the conduct of departmental affairs.

The chairman of the department may be either an associate or a full professor. His authority is not independent of the other members of his department, and he must get their agreement before taking a major position on an issue. He is chiefly a coordinator who is responsible for the day to day operation of the department in matters such as class scheduling, budget execution, space utilization, and personnel; generally, he represents his department in dealing with the administrative structure. The position is not necessarily considered desirable by most faculty members, because it interferes with their research and teaching duties. At some universities it rotates around the department with each member doing a stretch. Still, an individual who has served as chairman for many years knows his department well and thus is able to exert an extra degree of influence on its members and its policies.

As mentioned before, each faculty member, regardless of rank, considers himself intellectually equal to the others and free to profess what he believes. He conducts independent research, and once a class is approved for teaching he has complete freedom to organize and teach it without interference either from his colleagues in the department or from the administration. Normally, the only group activity he participates in is an occasional

departmental meeting.

This sense of individual responsibility sometimes makes it difficult for faculty members to come together as a group or to agree on issues. As a result, tension within a department is often noticeable, and it occasionally leads to discord and factionalism. Essentially, then, a department is an artificial grouping of individuals who do not necessarily think alike, work alike, or share the same intellectual goals. Some universities have attempted to deal with this problem by abolishing departments and using the college as the basic organizational unit. (A university consists of a number of separate colleges, each with its own faculty.)

Once the members of an ROTC staff understand this university structure and its operational philosophies and procedures, it becomes easier for them to assume a more active role in the campus community.

There are several steps that a PMS and his officers can take that will help them understand the academic environment better and to deal with it more effectively:

- **Make ROTC visible.** The staff members must believe that the ROTC program is vital and worthy of respect, and they must demonstrate this belief to the campus community. If they do not, their program will not get the respect and understanding it needs.

Within a university, there are many different programs and activities that, if they are to survive, must individually demonstrate their importance and their positive contribution to the university as a whole. If they cannot, they



will not receive a proper share of the university budget or attract a sufficient number of students. Although the ROTC program requires comparatively little university budgetary support, it does need to attract students, and it must adopt the same aggressively positive approach to projecting its on-campus image that the other programs adopt. It must avoid the tendency to retire behind its Army-guaranteed budget and the Training and Doctrine Command's assurances that its task is significant and appreciated. Instead of looking inward for support, it must look outward to the broader university community.

All ROTC activities should be openly and publicly carried out the same as any other campus activity. Uniforms should be worn when appropriate, and drills should not be held in secluded places. The ROTC staff members must respect themselves before they can expect others to respect them. They must also realize that most of the faculty and administration do understand the nature of the threat to our democracy and therefore fully, albeit quietly, support ROTC on their campus.

- **Be aware of differences in approach.** The ROTC staff members can avoid misunderstandings, even resentment, if they realize that the faculty's training is not like theirs, nor should it be. For example, as the first step in a discussion, academicians are trained to probe a topic critically and to examine it dispassionately. Then they draw conclusions that may or may not be pleasing — they may in fact only offer even more avenues for further critical discussion. To many Army officers assigned to an ROTC detachment, this belief in the value of the conflict-of-idea process often makes the faculty members appear hopelessly negative.

ROTC instructors should not interpret the direct questioning approach used by most faculty members as hostility; it is, rather, their honest and comprehensive way of acquiring information and placing it into some intellectual framework. The officers should respond to such inquiries honestly and learn to use a similar critical approach in their own problem-solving instead of trying to avoid any kind of contact with faculty members. While a high level of agreement is desirable within a military unit, just the opposite is true on campus: differing opinions are like bread and butter to an intellectual community, and without them a university would perish.

- **Be less formal.** The ROTC staff members must learn to think of themselves as faculty members as well as military officers, and they should respond accordingly to the university's less formal atmosphere. For example, intellectual equality is assumed to exist in all contact between faculty members. The use of "Sir" in addressing equals, therefore, may have negative implications of subordination for them, and this may hinder the development of sound intellectual relationships. Faculty members may even interpret the normal military courtesy of the ROTC staff as their wish to remain apart from the rest of the university community.

- **Use campus facilities.** The ROTC staff members should be encouraged to use campus facilities, because doing so will make it easier for them to establish contacts



with other members of the faculty and the administration. The PMS and his officers should use the faculty dining room, participate in the faculty club, and join other organizations that are important to strengthening the academic community.

This contact and the interest the cadre demonstrates in being an active part of the group will lead to greater social interaction, from which many personal and professional rewards can follow. At the least, the PMS should personally introduce his new officers to his faculty acquaintances.

- **Get involved as faculty members.** The PMS should impress upon his officers their responsibility to function as full-fledged faculty members within the community. Accordingly, they should seek membership on university committees and should understand faculty concerns.

If there is an ROTC committee on campus, the ROTC staff members should certainly use it to deal with issues that relate to ROTC campus problems; after all, that is its purpose.

In short, the PMS's objective should be to involve his officers as much as possible in those campus activities that promise to improve his program's image.

- **Develop faculty support.** It is more important for the ROTC staff members to influence and attract faculty members than it is for them to court administrators,

because it is the faculty members who have the most contact with and influence on the students.

One good way to develop support from the faculty members is to ask one of them each year to visit the annual ROTC advanced camp as the university's representative. In making his selection, the PMS should not rule out faculty members who are neutral or not particularly friendly toward the ROTC program.

A different faculty representative should be chosen each year so that as many faculty members as possible can become familiar with the summer camp program. Taking the same person year after year (as some PMSs are inclined to do) defeats the program's purpose and wastes money and time.

## BENEFITS

The PMS should keep in mind that no matter what he does, not all of his officers will make a smooth adjustment to their new environment. (An academician who suddenly had to function on a military reservation and within a military social structure would find it equally difficult to adapt and modify his approach. It is difficult to imagine someone wearing a suit and tie saying "Sir" with any regularity.) But if all of the ROTC staff members could succeed in adjusting, the ROTC program on that campus — and the Army as well — would accrue many benefits.

The ROTC program would be better integrated into campus life, and the ROTC staff members would be in a far better position to advise their student-cadets and help them adjust to campus life. The resulting acceptance from their peer group and the faculty should make the cadets feel more positive about their activities, which, in turn, should make their recruitment and retention easier.

The Army would benefit directly from the improved relationship between cadre and faculty, because the program would attract a better quality of cadet who would view his involvement in it as a respected and important campus activity. This positive self-image would help to stimulate his interest in an active military career, which should also affect the Army's long-range retention of ROTC-trained officers.

In addition, the more positive view of ROTC that has been evident on many campuses in the past few years would be further bolstered. As a result, the program could avoid being identified with potentially emotional issues, such as the re-establishment of the draft, that only indirectly touch on the ROTC program.

The improved relationship should also boost the morale of the ROTC staff members, because they would then see themselves not only as respected and useful members of the campus community but also as vital elements in the continued preservation of the world's oldest democracy. They should also feel less isolated and less frustrated with their assignment.

The faculty members of the institution could also benefit from the improved relationships. They would cer-

tainly gain a better understanding of the ROTC program and the Army's commitment to support a democratic society and its values. They might also be more willing to call on the ROTC staff members to share their experiences with the students who are not enrolled in the ROTC program. After all, many of the ROTC staff members have wide experience that they have gained in various parts of the world, and they would be more than happy to share that experience as guest lecturers or as team teachers in appropriate classes.

If the Army is to achieve its goals for the ROTC program during the 1980s, all Professors of Military Science and other ROTC staff members will have to be as effective as possible in doing their jobs. To be effective, they must make every effort to adjust quickly and fit into the particular academic community in which they find themselves. If they succeed in making that adjustment, they can look forward to one of the most personally rewarding assignments of their careers.



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# TRAINING NOTES



## Mechanized Battalion TOC

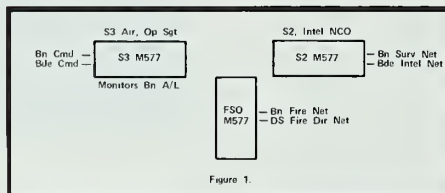
MAJOR WALTER E. MATHER

A mechanized battalion task force cannot conduct a successful combat operation unless it has an effective tactical operations center (TOC). And while Field Manual 71-2 does provide some guidance on establishing command posts, including their physical configurations and communication nets, that guidance has serious deficiencies. In particular, based on experience in Europe, a definite weak spot is the suggested organization of the TOC that is located at the main command post (CP).

The battalion commander usually operates from a jump TOC with his S3 and his air liaison officer (ALO). He has two radios with him — one operates on the brigade command net, the other on the battalion command net. He controls his portion of the battle from his jump TOC so long as he has communications with all of his elements. He passes his control of the battle to the main TOC only when he displaces his jump TOC or when he loses communications. Accordingly, the people at the main TOC must always be ready to accept control of the battle.

The S2, the S3 Air, and the fire support officer (FSO), together with their enlisted assistants, usually operate the main TOC. Their functions

include coordinating the use of the battalion's resources, providing intelligence information both up and down, analyzing events, and planning future operations. The physical and radio net configurations for the main TOC, as recommended in Field Manual 71-2, are shown in Figure 1.



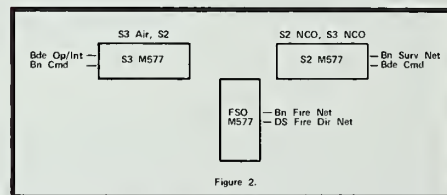
In most units in Europe, however, the brigade intelligence net is redesignated the brigade operations and intelligence net, which means that only the commanders and their S3s use the brigade command net. Status reports, lengthy spot reports, and net control station (NCS) traffic are not passed on this net. In fact, the NCS only monitors the traffic on that net.

At the main TOC, therefore, the S3 section does not receive current spot reports from the companies or from other sources unless they are sent over from the S2's vehicle. And while the radio nets in the main TOC can be remoted to the center of the TOC complex to help the S3 and S2 people talk more easily to each other, in a

fluid situation, with the main CP continually breaking down, moving, and setting up again, remoting is functional less than half of the time.

Accordingly, I believe the configuration for the main TOC shown in Figure 2 should be adopted because it permits closer coordination between the various key staff sections under all conditions — stationary or moving — and because it makes better use of the key people in the main TOC.

This configuration puts the S2, a captain, in the S3's M577 where he can supervise the brigade operations and intelligence net, a function he performed before in his own vehicle.



It also puts him next to the S3 Air, also a captain, who supervises the battalion command net. Information from the companies and from other sources can now go directly to the S3 Air who can then pass that information directly to the S2 for processing and transmission. The noncommissioned officers in the S2's vehicle can easily handle the battalion's surveil-

lance net, which carries little traffic once the battle has been joined, and can monitor the brigade command net for information only.

When the main TOC has to move, as it certainly will, this revised configuration permits continuous coordination between the two key staff sections, something the other configuration did not because of the physical separation of the S3 and S2 shops. It is also more conducive to round-the-clock operations because either the S3 Air or the S2 will be on duty in the S3 track at all times.

If the jump TOC is not forward and the battalion commander is with the main CP — a situation that will not normally occur for any significant period of time — the commander can operate from the S3's vehicle or he

can place his own command vehicle in the TOC complex opposite or adjacent to the FSO's M577.

The revised configuration brings the S3 and S2 shops in closer contact with each other, something that has been lacking traditionally and operationally. It also makes the S2 a key player in the battalion's scheme of things and uses him to a far greater extent than ever before. And although the S2 may be a Military Intelligence officer, that alone should not keep an infantry battalion commander from using him in a key operational role. If either the S3 Air or the S2 should lack experience, the other could make up for that shortcoming, something he cannot do under the present setup.

Battalion task force commanders,

by using this proposed configuration, will find that their tactical operation centers operate far more smoothly than in the past and that their TOCs will encounter far fewer problems in supporting the intense, mobile battles of the future.

#### **MAJOR WALTER E. MATHER**

graduated from the United States Military Academy in 1967. He served in Vietnam as a platoon leader and as a company commander, and was with the 1st Battalion, 36th Infantry in Germany from 1976 to 1979 where he served in a number of staff positions. He is presently enrolled as a student in the College of Naval Command and Staff, Naval War College, Newport, Rhode Island.

## Mortar ARTEP

**LIEUTENANT FRANK E. BLAKELY**

Although the prescribed evaluation methods have a lot to do with the scores mortar platoons make on their ARTEPs, many mortar platoon leaders do not understand the different methods that are used, especially during the fire for effect (FFE) phase. It probably makes little difference in the final scores whether they understand or not. But the Mortar Division of the Weapons, Gunnery and Maintenance Department of the Infantry School feels that mortar platoon leaders should know that there are both subjective and objective methods of evaluation and that they should know something about both methods.

The ARTEP evaluation is supposed to be conducted by a team that consists of seven people, an officer or

NCO in charge and six enlisted men. The officer or NCO and two enlisted men operate a flash base control center, while the other four men are equally divided between two surveyed observation posts.

Under the present ARTEPs (both 71-2 and 7-15), the objective evaluation method is supposed to be used. Both ARTEPs, in fact, specify that the FFE phase of each mission will be judged objectively by the observation evaluators.

But the Mortar Division of the U.S. Army Infantry School believes that it is physically impossible for the observation evaluators — the men at the surveyed observation posts — to judge the FFE phase objectively, because they have no evaluation tools immediately available at the OPs with

which to make such decisions. This means that the OIC or NCOIC at the control center ends up making the objective evaluation, which, according to the ARTEPs, is incorrect procedure.

To resolve this apparent conflict between the written and applied evaluation methods, the Mortar Division believes that, when visibility permits it, the subjective method should be used to evaluate the FFE. In other words, the observation evaluators should determine — on the basis of their training, experience, and judgment — whether an FFE was successful or not. It is up to them to decide whether the target was within the bursting radius of the mortar rounds, and whether, in fact, the target was damaged.



This is the method of evaluation field artillerymen use, and we have adopted it from their ARTEP 6-105. Knowing that there are times when the subjective method cannot be used, artillerymen do prescribe the objective flash base method as an alternative.

Like the artillerymen, we believe the objective method — the flash base technique — should be used only as an alternative to subjective observation when visibility is impaired by darkness, smoke, or the terrain. It can also be used as a back-up method if questions should arise during the performance of a mission.

For mortarmen who may not be sure how the flash base method works, it requires a minimum of two surveyed observation posts, each equipped with a battery commander's telescope or aiming circle and a radio. The flash observers are supposed to spot each round in the FFE, which is usually fired as a section right or a section left, and to send that information to the flash base control center. (The flash base method is usually used by the sound and flash platoon as a means of target acquisition. But it is also used during ARTEPs to evaluate the FFE phases.)

After the flash observations have been received in the control center, the FFE is evaluated by either the box or the circle method.

## METHODS

According to ARTEP 7-15, the box method (used only with the M19 60mm mortar), uses a box that has a width of the "section front or 30 meters (whichever is less) plus 8 probable deflection errors plus the number of meters subtended by an angle of 3 mils at mortar target range." This is not the clearest language that could have been used, and what follows is not much clearer: The depth of the box is determined by adding "30 meters to 8 probable range errors." Fortunately, this ARTEP is being rewritten, and we can hope that the language in it will be clearer.

The size of the box, then, is really dependent on the hit data, which is used to enter the firing tables to find the probable errors. The box is then centered on the target or, if the round has landed more than 50 meters from the target, the box is placed 50 meters from the target and perpendicular to the gun-target line.

The circle method uses two circles, one of which is 50 meters in radius and the other 100 meters in radius. The first circle is centered on the target, after which the 100-meter-radius circle is placed with its center anywhere on the circumference of the first circle or anywhere within it so as to encompass the greatest number of rounds. For a satisfactory score, at least 75 percent of the rounds must hit within the second circle.

The box method may be more accurate than the circle method because it allows for probable error based on gun-target range, but it is also time-consuming and awkward to use. When an objective evaluation must be made, we believe that the circle method is better for all of the mortars. It compensates for probable errors in the weapon systems, and it is less complicated to use. It can also save time and ammunition, because with it there is no need to fire a section right or left.

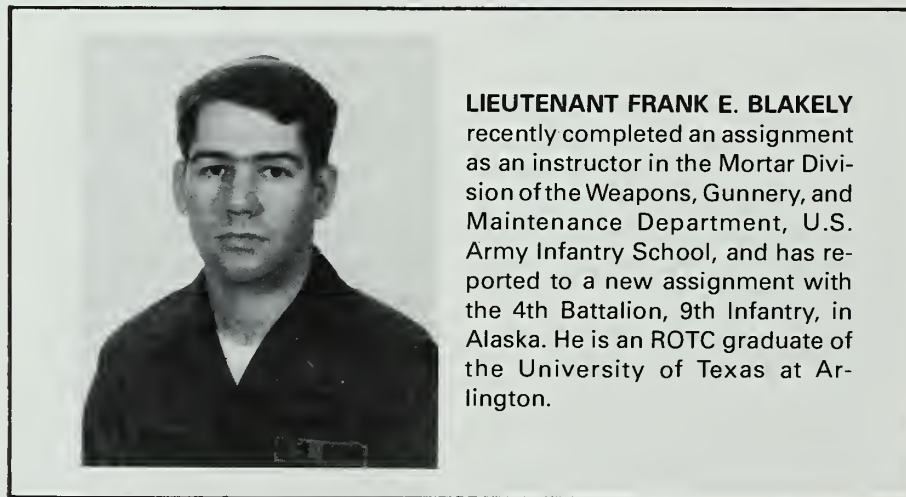
But the Mortar Division also recommends some changes to the circle method. The #1 circle is designed to compensate for probable errors in the weapon system — mortars are accu-

rate to within 50 meters of the target — while the #2 circle is based on the section front. But because the section fronts vary for the different mortars, the Mortar Division feels that the #2 circle should also vary. For example, the section front for the 4.2-inch mortar is 200 meters; for the 81mm, it is 100 meters; and for the M19 60mm, it is 40 meters. Therefore, the Mortar Division believes that the 4.2-inch mortar platoon should continue to use the 100-meter radius circle, but that the 81mm mortar section should use a 50-meter radius circle, and the 60mm section a 20-meter radius circle.

Another point must be emphasized, one that evaluators themselves sometimes forget: the mortar, like an artillery piece, is an area fire weapon, and its capabilities must be taken into account when evaluating its effectiveness. For example, an evaluator should not expect to see a mortar round go down the hatch of a vehicle.

The Mortar Division believes that, using the subjective method, properly trained evaluators can quickly and fairly assess the effectiveness of mortar rounds. When an objective method must be used, we recommend the circle method with the flash base technique.

Any questions about the subjective versus objective methods or the use of circles as opposed to boxes may be directed to the Mortar Division, Weapons, Gunnery and Maintenance Department, Fort Benning, Georgia 31905, AUTOVON 784-2513.



**LIEUTENANT FRANK E. BLAKELY** recently completed an assignment as an instructor in the Mortar Division of the Weapons, Gunnery, and Maintenance Department, U.S. Army Infantry School, and has reported to a new assignment with the 4th Battalion, 9th Infantry, in Alaska. He is an ROTC graduate of the University of Texas at Arlington.

# COMBAT THEATER

SERGEANT FIRST CLASS JIMMIE FERGUSON

A major obstacle to good training anywhere in Europe is space. Room to train — and particularly room to shoot — is always hard to find. Simple annual qualification firing is, for many units, a scheduling nightmare.

The problem is particularly acute in the Southern European Task Force (SETAF) area. Although SETAF is USAREUR's major subordinate command south of the Alps, it owns no ranges. And until recently its soldiers could conduct live firing only when ranges could be scheduled on an Italian Army installation or a United States Army post in Germany. Even then, the SETAF units would spend inordinate amounts of time, fuel, and effort getting to those ranges just to meet their minimum qualification standards. Yet SETAF is the parent organization of the 1st Battalion, 509th Infantry (Airborne) combat team, a unit that must be ready at all times to move on a moment's notice into an active combat situation.

Today, though, SETAF soldiers benefit from some of the best marksmanship training in the world, thanks to a special facility known as the combat theater.

Essentially, the combat theater is an indoor range, reconstructed to handle most types of service ammunition. But it is more than just an indoor range — some special features make it a strong competitor for the title of the best combat marksmanship training facility in the world.

(Similar theaters do exist in Berlin and Wiesbaden.)

The major features of the theater, which is contained within walls of half-inch steel plate, are four firing positions, a 12-inch deep sand pit

one of them should fail to find an anti-personnel mine that lies in his path, a pressure-activated buzzer under his knee may tell him that in combat he would have just lost a leg, or more.

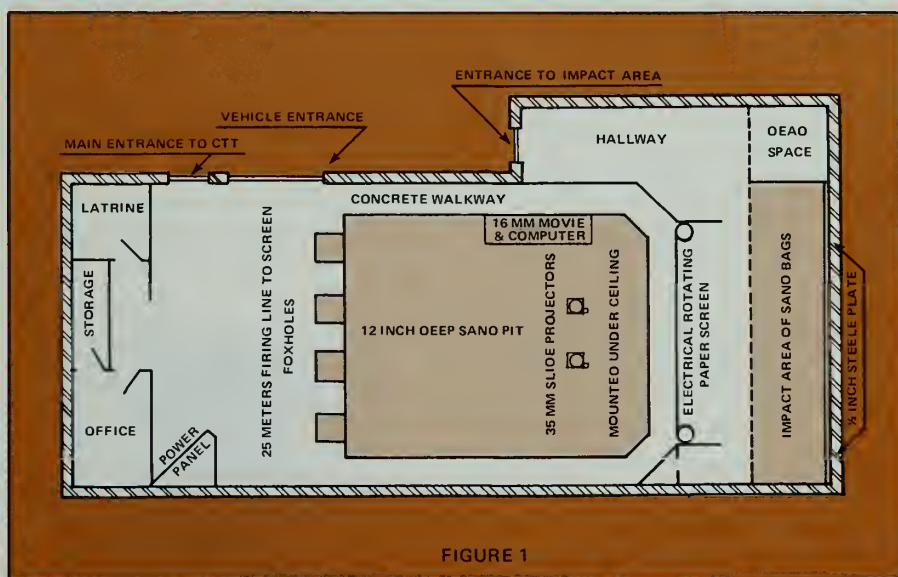


FIGURE 1

with simulated mines, a rotating paper screen upon which movie film or slides are projected, and a computer to control the film and the scoring (Figure 1).

A typical firing exercise begins with four fully equipped soldiers on the ready line. Although their M-16s and full combat gear rest behind them, each starts with only a bayonet in his hand, because to reach the firing positions they must probe their way through a simulated minefield. As they begin to move, the sounds of battle crash through the facility. If

Some participants say that the accompanying sounds of battle are very distracting, even with their earplugs in place, and they find the screams of wounded men particularly disturbing. They know it's just a tape, but the screams make them wonder how they would react if they were real.

Once through the minefield the shooter occupies a prepared foxhole and loads his weapon. Then he concentrates on the "terrain" to his front. In one program he sees an obscured treeline with flashes from enemy rifle muzzles coming from it.



It is hard to pick anything out clearly through the haze and smoke. Then the man to his right shouts, "Right front! Coming out of the smoke!" The shooter looks to one o'clock, and half a dozen enemy soldiers charge toward him from two hundred meters away, firing assault rifles at his position. It is hard for the firer to get a good sight picture, because the figures are dodging and shifting. He begins to fire, trying to remember the rules about leading targets. The rifles of the other men are cracking around him, too, and finally the enemy soldiers stop in place. All have been hit by the fire of the four shooters.

The charging soldiers are, of course, figures on a movie film projected against a specially designed target screen.

Another program is designed to sharpen the shooter's ability to find and engage targets. Several shapes — the suits of playing cards — are projected upon the screen at once. When the instructor calls, "Ace of clubs," the shooter has a few seconds to locate that shape among the others on the screen and to shoot and hit it. As the shooter becomes more adept, the find-and-shoot time is shortened.

Currently in the inventory are target films that put the shooter in conventional offensive and defensive combat situations — jungle warfare, combat in cities — and others that require him to cope with urban and village terrorist activities. Certain films also include images of both friendly and enemy soldiers and vehicles, which demands recognition skill as well as accurate firing from the shooters. Range simulation can be varied by film selection or, to some degree, by the positioning of the projector. The actual range from

the firing positions to the target screen is 25 meters.

Since the facility is enclosed and equipped with special lighting devices, the operators can dial in any type of lighting conditions they want from full daylight to total darkness. This provides the opportunity for standard training in night firing as well as for training with special night vision equipment.

The combat theater is large enough to handle a jeep-mounted TOW with a laser device or a sub-caliber weapon. Special films of enemy vehicles moving at various angles and ranges give the TOW gunners the same challenge the individual marksmen face.

The 105mm howitzer crews from the 1/509th can also train in direct fire techniques, using the same equipment. In addition, the members of the engineer platoon of the battalion use the theater to train in emplacing and removing the mines in the sand pit.

In a more mundane role, the combat theater can also be used for zero and qualification firing of individual weapons; this is, in fact, the way it is used most often. In this role alone, the facility is well worth its cost of

about \$187,000, because it saves the many trips and countless manhours formerly spent traveling to and from distant Army ranges. (This cost would have been much less if the initial construction plan had included the capability for handling ammunition larger than .22 caliber. It cost an additional \$90,000 to upgrade the facility.)

A special air-filtering system protects the shooters from lead gases, and alarms are attached to all entrances. The facility's only major limitations are its size — only four shooters can fire at once — and the sophistication of its equipment.

The SETAF combat theater is owned and operated by the U.S. Army Military Community Activity in Vicenza. A noncommissioned officer is assigned to operate the facility and to help commanders and trainers design programs to improve the marksmanship and tactical skills of the men in their units.

The film library has been expanded until it can provide many different kinds of targets and various types of light conditions. At the moment, the operators can't offer the shooter rain in the face, but they're working on it.



**SERGEANT FIRST CLASS JIMMIE FERGUSON**, now assigned as a Public Information NCO at Headquarters, Southern European Task Force (SETAF), enlisted in the regular Army in 1965 and served three years as an infantryman in Vietnam. He has also served with the 82d Airborne Division and as a platoon sergeant in the airborne battalion combat team at SETAF.





## SMALL UNIT TASK FORCES

*(Infantry School Quarterly, January 1957)*

Standard Infantry units must have training in combined-arms task-force operations. This training must encourage progressive thinking, and develop in all units increased capabilities for speed, better communications and more difficult logistical problems. It must accustom unit commanders to greater responsibilities.

Task forces will play an important role in any future war. They are not new — task forces were used during World War II and the Korean conflict. But current training emphasis on such forces is new. Infantry leaders will be expected to know how to form task forces, how to fight with them, how to win with them.

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## SMASHING THE TANK

*(Mailing List, Volume XXVII, 1944)*

From the isolated mortar squad with its single rocket launcher to the tank destroyer group with its many powerful cannon, our antitank echelons provide a connected system of resistance to mechanized attack that is capable of meeting force with equivalent force. To the individual soldier in the front line, massed hostile tanks bearing down are a fearful sight. That, indeed, is a large part of their purpose. Since the early Persian cavalry and scythed chariots, mounted forces have been employed on the principle that shock action plus speed produces terror. Poorly trained troops, unprepared for the terrifying spectacle, will break and run. Then it is a simple matter for the charioteer — or the tank driver — to overrun the fleeing mob. The modern antidote to such terror is understanding of two things — the limitations that handicap the enemy soldiers in the tanks; and, the extensive means which our forces possess for combatting tanks. The foot soldier cannot overrun a tank — he can outfight it.

Once they are taken under fire, enemy in tanks have their vision so restricted that they can neither move rapidly, maneuver precisely, nor aim accurately. Coordination between tanks is extremely difficult. Observa-

tion is so poor that even targets that are exposed and nearby cannot readily be picked up. The man in the tank is locked in an iron cell, jostled unmercifully, never certain that he will not suddenly find himself engulfed in flames or pierced with innumerable particles of red-hot metal. Once this situation of the enemy in the advancing tanks is clearly understood, our infantrymen will be able to forget their own terror in concentrating on the job of giving the hostile tankman better cause for terror.

The understanding of our own antitank organization is equally reassuring. A score of tanks descending upon a rocket team or antitank grenadier will seem overwhelming if those individuals think of themselves as the sole objective of all that mobile armor. But the soldier whose training has given him the sense of membership in a team will direct his weapon at one of the tanks with supreme confidence in the other rocketeers, rifle grenadiers, and antitank gunners of his battalion and regiment. If all the tanks are not stopped before reaching his position, he will be in his foxhole or have once close at hand to leap into at the last instant, knowing that the farther the tanks penetrate, the more numerous and more powerful will be the guns to blast them.

The tank may be new in form, but it is old in principle. And that principle of inspiring terror must still bow to the more fundamental principle that infantry — the better infantry — wins battles.

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## MILITARY ENGLISH: TOO MANY WORDS

*(Mailing List, 1934-35, Volume IX)*

It was once said of a famous author that he was intoxicated with the exuberance of his own verbosity. A good deal of military writing may well remind us of this saying, for it frequently contains supernumerary words, and long-winded phrases.

There is nothing about duty in the service of one's country that militates against writing concise, clear English. In fact, there is every reason for using just that kind of writing and no other kind. If war is the most uncertain of sciences we reduce this uncertainty in no way by using too many words.



# ENLISTED CAREER NOTES



## BRANCH CHIEF'S COMMENTS

One of our branch goals is to make sure that qualified soldiers get together with the new equipment they have been trained to operate. The keys to accomplishing this are the Special Qualification Identifier (SQI) and the Additional Skill Identifier (ASI). These qualifications are awarded at service schools or in field units after on-the-job training. The coding and input of required SIDPERS entries are the responsibility of the Military Personnel Office that supports the awarding school or unit.

One of the ASIs we are working on is E9, which was established to identify soldiers who have received training on the Improved TOW Vehicle (ITV). With the deployment of the ITV to CONUS divisions, it has become increasingly important for us to be able to identify qualified soldiers and assign them to locations that have the ITV.

Each individual soldier can help us by checking and updating his DA Form 2, making sure his MOS, ASI, and SQI reflect any special training he may have received. If he is ITV qualified, the form should show an ASI of E9.

Our branch point of contact for additional information is SFC Miller, AUTOVON 221-8058/59.

**LTC ROBERT J. GRAHAM**

## REENLISTMENT OPTION EXTENDED

All career stateside soldiers in the ranks of staff sergeant and below with 14 years of service or less will be eligible for the CONUS-to-CONUS

station-of-choice reenlistment option under an extension of the program.

Until now, under the option only first-term soldiers were eligible to reenlist for a guaranteed 12-month assignment at another CONUS post.

The expanded program went into effect on 1 November 1980, and effective 10 December 1980, Forts Campbell, Carson, and Stewart became available under the option.

*(NOTE: This item corrects a similar one that appeared in INFANTRY, January-February 1981, page 45.)*

## FIRST SERGEANT COURSE

The first class of the First Sergeant Course will be conducted at Fort Bliss, Texas, from 1 April to 31 May 1981 to validate the instruction systems development model. Thirty NCOs in the ranks of PSG/SFC and MSG/ISG have been selected by major commands and MILPERCEN from combat arms, combat support, and combat service support career fields to attend.

Following validation of the program of instruction, the U.S. Army Sergeants Major Academy will assume pronency for the course from the U.S. Army Air Defense School and will conduct the pilot class beginning 1 October 1981 at Fort Bliss. Five classes of 60 students each will be conducted the first year with expansion to five classes of 180 students each in Fiscal Year 1985. The instruction will stress preparing soldiers for first sergeant duties, and graduates will be required to fill first sergeant vacancies.

Major commands will select 90 percent of the students for training in a TDY and return status, and MILPERCEN will select 10 percent for

attendance TDY enroute to a new assignment. Soldiers in the ranks of PSG/SFC and MSG/ISG who are occupying first sergeant positions and have served in that capacity for six months or less, and first sergeant designees are eligible to attend. DCSOPS will allocate quotas on the basis of first sergeant allocations within each major command.

An NCO who has been identified for first sergeant duty or who wants a first sergeant assignment may volunteer for the course through his command channels to his major command (for TDY and return) or to MILPERCEN Career Branch (for TDY enroute). The soldier's DA Form 4187 should identify his preference for the class beginning in October 1981, in January 1982, or at a later date.

## ENLISTED BAS ON TDY

Starting next September, enlisted men on temporary duty assignments will receive a basic allowance for subsistence in addition to the subsistence portion of their per diem payment.

Unlike officers, enlisted men now do not qualify for BAS while on TDY. Consequently, when no government dining facilities are available, both officers and enlisted men receive \$19.50 for subsistence as part of their per diem, but officers also receive BAS.

When government meals are available for enlisted personnel, as is often the case, they do not receive the \$19.50. Instead they are expected to eat free meals in the dining halls.

Officers, on the other hand, must pay for the government meals when they are available. For this, however,

they receive about \$9.00 in their per diem (instead of the \$19.50) to cover the cost of meals plus a surcharge. In addition, they continue to receive BAS.

Starting next September, enlisted men will also receive BAS while on TDY and, when government meals are available, will continue to receive both the BAS and a subsistence payment included in their per diem.

Whether enlisted men will pay a surcharge on their government meals on TDY has not yet been decided.

### UNIFORM CHANGES

The Army has approved shoulder boards for NCOs, and, in an exception to policy, soldiers in hot climates will also be permitted to wear ribbons and badges on their gray-green uniform shirts.

The shoulder boards will be for all soldiers in the ranks of SGT/SP5 and above, plus corporals. The shoulder boards, which will be worn on the shoulder loops of the gray-green shirts, will be black with embroidered rank insignia. (Officers' shoulder boards are green with embroidered gold stripe and rank insignia.)

In addition, soldiers stationed in Clothing Zone I — which includes Panama and Hawaii — will be able to pin ribbons and badges on their gray-green shirts if they want to. The present policy limits pin-on items to name tags, enlisted rank insignia, and chaplains' crosses or tablets. The exception was made because soldiers in hot climates seldom, if ever, wear

their green uniform jackets and therefore have little opportunity to display their ribbons and badges.

### BONUS FOR REENLISTMENT

A \$600 bonus will be paid to combat arms veterans who reenlist for three years in either the Individual Ready Reserve (IRR) or the Inactive National Guard (ING).

The incentive bonus program, which was announced in December 1980, initially will include enlisted soldiers with combat arms MOSs — either active, reserve component, or prior service — who have completed their military obligations and who reenlist for three years in the ING or IRR. To be eligible, a soldier must have less than 10 years' total service, but waivers of that time limit will be considered.

The first \$300 of the bonus is to be paid when the soldier reenlists and the rest in \$100 increments at the end of each year he serves in the IRR or ING.

The IRR is intended to flesh out active and Reserve Component units upon mobilization and to replace combat casualties in the initial stages of any conflict. The ING is composed primarily of soldiers who have a remaining National Guard commitment but are not in a unit.

The bonus is being offered to attract and retain trained soldiers to fill vacancies within the total Army upon mobilization.

While the first bonus will go to soldiers with combat arms MOSs, it is

possible that other badly needed skills could be included later.

### FULL-TIME RESERVE AND GUARD

The Army has adopted a full-time manning program to increase the unit readiness of Army Reserve and Army National Guard units by assigning additional full-time soldiers to them. Experience has shown that assigning active duty soldiers, Reservists, and Guardsmen to full-time duty in a Reserve or National Guard unit improves that unit's readiness. (INFANTRY, January-February 1981, page 7.)

In the past, the only full-time unit support available was a small number of civilian technicians who took care of the necessary day-to-day administrative, supply, and maintenance functions.

Under the new program, soldiers from active and reserve components are assigned to high priority Reserve and Guard units on a full-time basis to improve training, mobilization planning, supply, maintenance, and other readiness-related functions.

The soldiers who are assigned to full-time manning duty will live near, work, and deploy with the Reserve or Guard units to which they are assigned.

The Army is looking for junior and midgrade NCOs to fill these assignments. Anyone who is interested should check with a USAR Center or an Army Recruiting Office for details.





# OFFICERS CAREER NOTES



## SECTION CHIEF'S NOTES

I would like to start 1981 with a few words about recent policy changes that will affect all of us. By now I hope that most officers have been briefed on the ARCOST (Army Cohesion and Stability) initiatives. If not, I will review for you a few of the more important initiatives.

First, the tour length for company command has been established as 18 months, plus or minus 6 months, effective with officers who assumed command after 1 December 1980. This is not retroactive.

With regard to this change, the following ground rules on extensions will apply:

- If an officer is in command when MILPERCEN initiates a reassignment action he will not be removed before he completes 18 months in command for any assignment unless approved by his command.

- MILPERCEN will approve a request for an extension of 12 months on station or until completion of 18 months in command, whichever is sooner.

- An officer on PCS orders should not be placed in command at the losing installation.

- An officer who has been on station for more than 24 months will not be placed in command without coordination with MILPERCEN.

Before ARCOST, about 22 percent of all MILPERCEN-managed officer authorizations enjoyed "exception status" for Officer Distribution Plan (ODP) purposes. This meant that those excepted agencies could request an officer by specialty and grade where there was an excepted authorization, and that nonexcepted organizations absorbed all of the Army's shortage of officers. Since AR-

COST decisions, only about 10 percent of the MILPERCEN-managed officer authorizations will enjoy excepted status, which will increase the number of officers who will now be available to fill formerly nonexcepted agencies and commands — mostly units in the field.

Effective 1 December 1980, some significant changes were implemented with regard to the assignment process.

- OPMD assignment managers will notify the appropriate personnel staff officer at a CONUS post or installation to provide general PCS assignment information on officers who are assigned to that post or installation.

- The post point of contact will notify the appropriate commander.

- The commander will notify the officer concerned after discussing the specifics with the appropriate assignment manager.

In view of the passing of the Defense Officer Personnel Management Act (DOPMA), which requires selection board action, implementing instructions for decentralized promotion authority to captain to field commanders will be provided at a later date.

Army Secretary Clifford L. Alexander has approved a promotion-by-specialty system for the 1981 Lieutenant Colonels Selection Board (to convene on 10 March) and for the Colonels Board (scheduled to convene on 3 March). At this time, there are no plans to extend this concept to the promotion of majors, but this is possible in the future.

Although these initiatives have been published in other articles or messages, we still find that the word has not filtered all the way down. I hope that I have been able to clarify

any questions regarding these changes.

I also want to clear up some misunderstandings in regard to weight control. First, with all that has been published on the subject over the past four years, it should come as no surprise that meeting the weight standards prescribed in AR 600-9 is an important consideration in any selection process; and, for officers who fail to meet these standards, a comment to that effect is required on their OERs.

In response to many inquiries, the following is the procedure to be followed with an officer who is over the maximum allowable weight:

- He will be referred to a physician for evaluation to determine if he is overweight or obese or if there is any medical reason why he should not participate in a weight control program that would include diet and exercise.

- If the physician diagnoses the officer's condition as resulting from an underlying or associated disease process, the physician will either prescribe treatment to alleviate the condition and return the officer to his unit; hospitalize him for treatment; or determine if the condition is medically disqualifying for continued service.

- If the physician discovers no underlying or associated disease, he will so certify and recommend a reducing diet, an exercise program, or a combination of the two.

- After a period of dieting and exercise, not to exceed six months, an officer who has not achieved the standard will be reevaluated.

Any officer can submit in his own behalf any medical statements to the president of a board that is reviewing his file. These letters should be ad-

**Infantry Management Section  
Combat Arms Division  
(202) 325-0207/8/9, 325-7823 or AUTOVON 221-0207/8/9, 221-7823**



**LTC THOMAS H. BRETT**  
Lieutenant Colonels,  
Specialty 11 CONUS



**LTC(P) GERALD K. GRIFFIN**  
Chief



**MAJ TED BRIDGES**  
Majors, Nominative/  
Other Specialty



**MAJ TED CHILCOTE**  
Specialty 54



**CPT JEFFREY B. DIENNO**  
Lieutenants, Specialty 11



**LTC ROGER DIMSDALE**  
Captains, Specialty 11



**MAJ W. F. KERNAN**  
Captains, Nominative/  
Other Specialty



**MAJ LAWSON MAGRUDER**  
Majors, Specialty 11





**CPT ALEX B. McKINDRA**  
New Accessions, Recalls  
to Active Duty, Schools



**LTC J. SULLIVAN JR.**  
Lieutenant Colonels,  
Specialty 11, Overseas

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**Colonels Division**  
**(202) 325-7866 or AUTOVON 221-7866**

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**LTC JOHN A. DUFF**  
Colonels,  
Specialty 11 (A-K)



**LTC MYRON K. RICE**  
Colonels,  
Specialty 11 (L-Z)

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**Infantry Branch Representative**  
**Fort Benning, Georgia**  
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**Career Program Manager, SC 11, 12 & 54**  
**Plans, Programs, and Analysis Division**  
**(202) 325-0417 or AUTOVON 221-0417**

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**CPT ELDON A. BARGEWELL**



**LTC SPURGEON AMBROSE**

dressed to President, \_\_\_\_\_ Selection Board 1981, DAPC-POS-B, 200 Stovall Street, Alexandria, VA 22332. These letters are not automatically reviewed by other boards; the officer must submit the statements to the president of each board that is to review his file. This is important and should be given prompt attention.

Anyone who needs additional clarification on any of the items discussed here should not hesitate to call us at AUTOVON 221-0207/8/9 or 221-7823 or Commercial 202-325-0207/8/9 or 325-7823.

## PROMOTION BY SPECIALTY

A new promotion-by-specialty system was approved in November 1980 for implementation early this year.

The 1981 Lieutenant Colonel (AUS) and the Colonel (AUS) boards — both scheduled to meet in March — will employ the new system in promoting officers managed by the Officer Personnel Management Directorate (OPMD). Instructions given to these boards will contain the minimum number of promotions needed in each specialty to satisfy projected Army requirements.

Identified as a further refinement of the Officer Personnel Management System (OPMS), the new system is designed to provide the Army with the requisite number of officers by grade and specialty, and to allow for normal advancement in all OPMS specialties.

As approved by the Secretary of the Army, the promotion-by-specialty system is compatible with the recently passed Defense Officer Personnel Management Act (DOPMA).

For the 1980 promotion boards, steps were taken to reduce shortages in a small number of specialties as a transition into the new promotion system. The Lieutenant Colonel (AUS) board was given guidance on the number of lieutenant colonels needed in underaligned specialties, and the Colonel (AUS) board was

given mandatory quotas for underaligned specialties.

Promotion to the ranks of major and below will not initially be included in the promotion-by-specialty program, nor will Chaplain, Judge Advocate General, or Army Medical Department branches be included in the system for 1981.

## TRAINING DEVELOPMENTS (SC 28)

Training Developments (Specialty Code 28) is the specialty that provides Army officers with the background and training to manage the range of functions that make up a systematic approach to training. These officers are in a support role to insure that military training is designed and presented so as to make the most of the time and talent of all concerned. While a training development officer does not normally present the training, he is involved in the analysis, design, development, and evaluation of it.

SC 28 is a non-accession specialty. This means that it is normally awarded to an officer at the eighth year of his career. Some officers may be awarded the specialty earlier under the permissive specialty designation policy, which means an officer may request a specialty on the basis of his experience, military training, or civilian education.

At the present time, the vast majority of the training development positions are in the Training and Doctrine Command (TRADOC). An officer who is serving in his accession specialty at one of the TRADOC schools is exposed to the training development process and may have an opportunity to serve in positions that give him an excellent training development background. An officer who has both accession specialty qualifications and previous exposure to the training development process is a very likely candidate for the training development specialty.

The specialty training is now struc-

tured for three categories of officers: senior managers, middle managers, and training developers. Senior managers and selected middle managers are now trained in a series of courses conducted at various contracted facilities. Other training development officers are trained after they arrive for duty in a training development position. The training programs are approximately one to three months in length.

Examples of training programs are:

- Criterion Referenced Instruction Course.
- Job and Task Analysis Course.
- Skill Qualification Test (SQT) Course.
- Course Designer/Developer Course.
- Trainers Course.
- Job Aid.

These are student-centered courses designed to give each participant the specific skills he needs to perform his duties. Advanced degrees in educational or instructional technology and in general education also support the specialty.

The following are some typical SC 28 duty positions:

### Captains:

- Training Analysis Staff Officer in a U.S. Army Service School, Training Center, or Training Support Center.

### Majors, lieutenant colonels, and colonels:

- Branch Chief for Course Development in a service school.
- Branch Chief for Training Analysis and Design in a service school.
- Division Chief in the Training Developments Institute.
- Deputy Chief of Staff for Training, Army Training Board.

### Colonels:

- Deputy Assistant Commandant in a service school.
- Director of Training Developments in a service school.
- President of the Army Training Board.
- Director of the Training Developments Institute.



# BOOK REVIEWS



In our last issue we mentioned some of the many books about World War II we have received during the past several months. Here are more of the same, the best of the others:

• **FIFTH ARMY AT WAR**, by George Forty (Scribner's, 1980. 144 Pages. \$17.50). Of all the World War II United States armies, the Fifth Army, whose headquarters was activated in North Africa in 1943, held the record for the longest continuous period in action against the enemy. Commanded first by Mark W. Clark and then by Lucian K. Truscott, it first went into action at Salerno, Italy, in September 1943. A truly international force, it fought in battle conditions that were probably as bad as any in Europe.

George Forty, who served in Britain's armored forces for 22 years, tells the Fifth Army's story well as he recalls those momentous war years during which the Fifth Army soldiers fought their way up the Italian peninsula. His text is superbly complemented by hundreds of illustrations of all kinds.

• **BATTLE OF THE BULGE, 1944**, by Napier Crookenden (Scribner's, 1980. 160 Pages. \$17.50). Another long-serving British Army officer, a leader in Britain's airborne forces, uses Hugh Cole's official U.S. Army history of the battle of the Bulge as his guide as he tells us once again of many of the major events of that epic World War II struggle. To his credit, he touches only lightly on the high-level command controversies that almost destroyed the Anglo-American military alliance, preferring to concentrate on individual and small unit exploits.

As in the Forty book, numerous photographs do much to enhance the narrative. Careful readers will note a

few typographical errors and at least one incorrect photo caption.

• **THE CAMPAIGN FOR NORTH AFRICA**, by Jack Coggins (Doubleday, 1980. 208 Pages. \$15.00). Jack Coggins was an "artist correspondent" during World War II, and since then has authored and illustrated a number of books on that war. Here he presents a rather straightforward account of the Allied operations in North Africa from the Battle of El Alamein in late 1942 to the capitulation of the Axis forces in Tunisia in May 1943. He uses an introductory chapter to set the stage, numerous maps to trace the course of the battles, and many black-and-white drawings of the various pieces of war-making equipment — tanks, planes, guns, ships — used by both sides.

• **BLITZKRIEG, 1940**, by Ward Rutherford (Putnam's, 1980. 191 Pages. \$16.95). The author is a British television journalist and administrator with ten other books to his credit. In this heavily illustrated book, after two introductory chapters to bring his readers to 10 May 1940, he tells of the Germans' smashing successes against the combined French, British, and Belgian armies in what must be recognized as one of the great military victories of all times.

Rutherford cites several possible reasons for the German success but believes the "fundamental factor" to be "the two great follies of the British and French. The first was to give a worthless guarantee to Poland and the second was to pretend to keep it."

• **IWO**, by Richard Wheeler (Lippincott and Crowell, 1980. 256 Pages. \$12.95). Richard Wheeler served as a U.S. Marine on Iwo Jima and was seriously wounded there. In this

book, written to commemorate the 35th anniversary of that savage Pacific battle, Wheeler uses interviews, memoirs, and personal letters to tell the story of the battle as the men — both American and Japanese — who fought there saw it.

Wheeler has used a similar technique before in books about the Civil War, and it's an effective one. It makes this book well worth reading. And his Chapter 11 should stand as the definitive account of the famous flag-raising incident on Mount Suribachi by men from Company E, 28th Marines, which was Wheeler's unit.

• **MARCH PAST: A MEMOIR BY LORD LOVAT** (Holmes and Meier, Second Edition, 1979. 399 Pages). During World War II, Great Britain produced a significant number of outstanding fighting men. Lord Lovat, a Commando leader, ranks at or near the top of the list and the reader knows why after he has read this book. The bulk of the book is devoted to Lord Lovat's World War II combat experiences. He was one of the first commandos and took part in several cross-Channel operations before 6 June 1944. During the D-Day operations, he commanded the 1st Army Commando Brigade, but his wartime services ended on 12 June 1944 when he was seriously wounded.

His is not only a fascinating account of men at war, it contains the author's many personal opinions on the Allied military and civilian hierarchy and on some of the events that hierarchy caused to happen.

Now, here are some of our other reviews:

**NAPOLEON AT BAY, 1814**, by F. Loraine Petre (Hippocrene Books,

1977. 219 Pages. \$14.95).

**NAPOLEON, THE LAST CAMPAIGNS, 1813-1815**, by James Lawford (Crown Publishers, 1977. 160 Pages. \$12.95). Both reviewed by John Romjue, Headquarters TRADOC.

These two books offer detailed coverage of Napoleon's last campaigns. The first is a reprint of the last in a series of five works that were completed in 1914 by a noted military historian. It is a spare, solid, critical narrative of the French campaign of January-March 1814, which followed Napoleon's shattering defeat at Leipzig. To Petre, the campaign revealed Napoleon at his best. This is good, old-style campaign history, and Petre's narrative never loses the reader as he follows the war of maneuver and surprise that Napoleon waged against the two great armies of Schwarzenberg and Bluecher.

Lawford's book is an illustrated account of Napoleon's final three years, beginning with the battle of Lutzen in May 1813. Attractive color plates and black-and-white reproductions of battle scenes, commanders, and uniforms appear on nearly every page, and the maps are clear and numerous.

The volume though, as Lawford puts it, claims "no pretensions to be a military treatise." It is, in fact, a largely uncritical narrative containing little new interpretation or insight. The anecdotal approach is at times distracting, and the author exhibits a too-free imagination that leads him to record personal feelings and meditations that could not possibly have been documented.

Despite such faults, Lawford's book presents credible, colorful battle scenes, and he relays constantly the lessons of military history. It may be easy to laugh at the stupid mistakes the great military leaders made, but strategy and tactics are not as easy to practice as they may seem.

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**SCOTT OF THE ANTARCTIC**, by Elspeth Huxley (Atheneum, 1978. 303 Pages. \$12.95). Reviewed by Rear Admiral George L. Phillips, United

States Navy, Retired.

The fever of polar exploration hit its zenith in the quarter-century between 1890 and 1915. The earlier push for the Northwest Passage had climaxed with Franklin's disappearance in 1846 and the subsequent efforts to determine his fate.

But in the 1890s, the obsession with high latitudes again stirred increased virulence. In the North, the comic drama of the Americans, Peary and Cook, was played out to an inconclusive end marked by vituperative propaganda, the last gasps of which are still being heard today. The British, perhaps with more sense, turned their thoughts instead to the Antarctic, a region unknown until 1898.

In 1901, sponsored jointly by the Royal Society and the Royal Geographic Society, Robert Scott's expedition sailed from England to penetrate the Antarctic continent for the first time. A naval commander, Scott was an odd choice, having no experience and no knowledge or interest in polar exploration. His only qualification was a favorable impression he had made some fourteen years before on Clements Markham, who now was the influential president of the Royal Society. Scott was a self-doubter, moody, and uncertain in his judgments; his first expedition was an exercise in near-disaster. It accomplished little during its three years in the Antarctic except short ventures in ice travel. But it approached no nearer than 500 miles to the South Pole.

Scott's second attempt in 1910-1912, which ended in his death, was a classic of failure, except that he did reach the Pole. Ill fortune dogged him. His dependence on motor sleds was futile. He hedged on his choice of animals. His food resources were too meager. And although his party made an incredible series of marches through horrible weather and finally attained the South Pole, it was beaten to its goal five weeks earlier by the Norwegian, Amundsen.

The party's return trip was even worse, with wind and weather unre-

mitting in their ferocity. With his food and fuel running out and his life rapidly ebbing, Scott failed to reach his food cache by a scant ten miles. On the ice shelf in a blizzard, with two surviving companions, Scott died.

Huxley's account is over-long and dramatized. The intimate correspondence between Scott and his wife during their courtship and early marriage is superfluous to the story and lends it a strong soap opera flavor. She does give a glimpse of Scott's changing opinions of his companions, his stubbornness, and his indecisive moments.

The bibliography of Antarctic exploration is extensive. Any interested reader will find a wealth of excellent and absorbing reading in the writings of two of the survivors of the expedition — Mountevans and Shackleton — and in Scott's own journals, which he faithfully kept until his cold death.

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**EMPIRES IN COLLISION: ANGLO-BURMESE RELATIONS IN THE MID-NINETEENTH CENTURY**, by Oliver B. Pollak (Greenwood Press, 1979. 214 Pages). Reviewed by Mitchell R. Katzberg, Dix Hills, New York.

During the first decade of the 19th century the Burmese and British Indian empires collided and began almost a century of Anglo-Burmese conflict. The first wars between the two, in 1824 and 1852, cost Burma territory, treasure, and manpower. The third, in 1885-1886, extinguished its sovereignty.

In this scholarly study, Oliver Pollak focuses on the events that occurred between 1837 and 1867, a period that forms a mid-19th century centerspan in imperial history and depicts the relations between a modern nation and an administratively and technologically backward one.

Pollak feels that neither Britain nor Burma created policy in a vacuum, and that Burma tended to be guided by a warranted suspicion of the white, Christian, English-speaking intruders who seemed to seek their



own gain at Burma's expense. Britain, on the other hand, reacted to reports from its local agents and to rumors of Burmese intentions. The British officials in London and Calcutta were guided by security and economic concerns and became captives of the local circumstances and of their own frontier agents.

It is difficult to agree with the author's contention that the Second Anglo-Burmese War was a product of intense human factors rather than overriding economic motivation, particularly since Burma's most prized natural resource was teak, which at the time was in great demand by the British naval and merchant fleets.

This interesting and informative book shows the author's full appreciation of the interaction and reaction process that produced the conflict, and of the methods by which that conflict modified the British, the British Indian, and the Burmese empires.

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**SOLDIERS OF DESTRUCTION: THE SS DEATH'S HEAD DIVISION, 1933-1945**, by Charles W. Sydnor, Jr. (Princeton University Press, 1977. 371 Pages. \$22.50). Reviewed by Alexander S. Birkos, Mount Shasta, California.

Professor Sydnor draws on a wide variety of documentary material to relate a vivid history of the SS *Totenkopfdivision* and its overall relationship to the SS itself and the Nazi ideology.

This was one of the first and certainly one of the toughest of the *Waffen SS* formations. Its ethos of brutality stemmed directly from its first commander, Theodor Eicke, who organized and administered the prewar concentration camps. Most of the division's original personnel were, in fact, recruited from camp guards (*Totenkopfverbände*) when the division was formed in 1939.

Although the division's recklessness in combat, and its resultant high casualty rate, was revealed early in the French campaign, it proved to be a tough and fanatical unit. The mas-

sacre of 100 British prisoners of war at Le Paradis also showed how well Eicke had instilled his personal views in his men. (Eicke later directed the mass murder of 18,000 Russian prisoners at Sachsemhausen.)

Throughout most of the fighting on the Eastern front, the division gained respect for its tough fighting qualities and became one of the so-called "fire brigades" that were used to stem and slow down Soviet advances. When the division surrendered to the Third United States Army, it was turned over to the less than tender mercies of the Soviet Army.

Sydnor's thoroughgoing research and smooth narrative make this book a pleasure to read. He completely dispels any myths and apologies that SS soldiers were like other soldiers and were only doing their duty.

Professional officers should certainly find this to be a fascinating account of how this unit was organized, instilled with a brutal doctrine, and often at the center of SS intrigues. Despite its fanaticism in combat, it was not a unit that could be emulated by anyone with any degree of civilized behavior.

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**AIRBORNE: THE HISTORY OF AMERICAN PARACHUTE FORCES**, by Edwin P. Hoyt (Stein and Day, 1979. 228 Pages. \$12.95). Reviewed by Leroy Thompson, Festus, Missouri.

This book is meant to be a survey history of United States parachute forces and is written with the general reader in mind. Beginning with Billy Mitchell's plan to use parachute troops in World War I and ending with a discussion of the 82d Airborne Division's mission in today's Army, this work covers combat drops in World War II, Korea, and Vietnam. Hoyt has an engaging style and employs a good mix of anecdotes about individual paratroopers with an analysis of the strategic and tactical uses of airborne forces.

Because of his popular approach, though, Hoyt's treatment of operations is, in many cases, rather super-

ficial and by comparison with books like Devlin's *Paratrooper* leaves much to be desired. But he does cover a lot of ground and if read as it is intended to be read, it can prove to be an informative work for most readers. But the serious student of airborne warfare will probably find the book somewhat disappointing.

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**THE CHINESE ARMED FORCES TODAY: THE U.S. DEFENSE INTELLIGENCE AGENCY HANDBOOK OF CHINA'S ARMY, NAVY, AND AIR FORCE** (Prentice-Hall, 1979. 240 Pages. \$15.00).

As the title indicates, this is a reproduction of the U.S. Defense Intelligence Agency's "Handbook on the Chinese Armed Forces (DDI-2680-32-76)," which was originally published in 1976.

It includes chapters on China's armed forces and their historical development and the ground forces' order of battle; on the Chinese Army's organization, equipment, and tactical employment; and briefer chapters on China's air force and navy. It also includes a large number of illustrations and tables.

This publication is an excellent guide to an army about which many U.S. military people know little, but one about which we are destined to hear much more in the months and years ahead.

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**EYE-DEEP IN HELL: TRENCH WARFARE IN WORLD WAR I**, by John Ellis (Pantheon Books, 1976. 216 Pages. \$10.00). Reviewed by Captain Russell L. Boraas, Army National Guard.

This book is a recounting of the daily life of infantrymen on the Western Front during World War I. There is a strong emphasis on things British, which reflects the author's own origins. Strategy and tactics are dealt with only as they affected the lives of the frontline troops. Therefore, the construction of trenches, the nerve-shattering artillery bombardments, and the devastating effects of ma-

chineguns on massed infantry receive considerable attention while the course of particular battles and the war itself is left to other writers.

An entire chapter is devoted to mud, water filled trenches, lice, flies, rats, and the stench of decomposing bodies. Other chapters deal with mail, rations, pay, and medical care. The recurring theme is the effect that all of these things and the other hardships had on the minds of the soldiers who had to endure them, not knowing when, if ever, the war would end.

The book was meant for the general reader, not the scholar, and it is well worth a soldier's time to read it both for its details of daily life in a war of position and for its insights into the effects of combat on the minds of men.

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**COUNTERCOUP: THE STRUGGLE FOR THE CONTROL OF IRAN**, by Kermit Roosevelt (McGraw-Hill, 1979. 217 Pages. \$12.95). Reviewed by Dr. Joe P. Dunn, Converse College.

A few years ago most Americans knew little, if anything, about Iran. The fall of the Shah, the ordeal of the American hostages, and the complex politics of that country captured our attention.

Today, the Iranian revolution, Islamic culture, and the geopolitical importance of the area dominate both the news media and the academic community. But one topic that the Iranians constantly raise as a source of their hostility toward the United States remains murky: the CIA's role in the 1953 overthrow of the Iranian Prime Minister Mohammed Mossadegh and the restoration of the Shah to the Peacock Throne.

Most of what has been written about the affair is either sketchy, fictionalized, or totally inaccurate. Now the man who coordinated the coup against Mossadegh, or counter-coup as he proclaims it, tells his personal story of the events and activities of the summer of 1953. Grandson of Theodore Roosevelt, veteran OSS and CIA operative, and the subject of

Graham Greene's classic *The Quiet American*, Kermit Roosevelt claims to unfold the story in intricate detail from the planning meeting in John Foster Dulles's office through the power play in the streets of Teheran.

But appearances are deceptive. While the author provides a good overview with detailed accounts of such peripheral issues as how he entered the country, the day-to-day activities of the planners, and furtive meetings with the Shah, he is too much the good intelligence agent to reveal anything of substance. The book provides almost nothing about CIA involvement with the various elements in the country or the real behind-the-scenes mechanics of the counter-coup. The account is a sanitized pro-Shah perspective with the participants neatly categorized as good or evil elements on the basis of their support or opposition to the Shah.

Clearly written for the layman rather than the scholar, the book is interesting, and it provides glimpses of Iranian history, the role of the country during World War II and the early Cold War, and a hint of the complexity of the internal political situation. But one could never begin to understand the origins of the current U.S. - Iranian crisis by reading this book.

It is worth reading, but it should be treated as only part of a larger sampling of the growing literature on the origins of the contemporary situation.

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**THE MILITARY BALANCE, 1980-1981**. London: The International Institute for Strategic Studies, 1980. 120 Pages. Paperback, \$11.00.

This is the 21st issue of the Institute's assessments of the main denominators of military power in the world. Among the major points made by the Institute are:

- The cost of modern weapons is rising fast and in almost every case exceeds by a substantial margin the prevailing rates of inflation. Economic constraints will force some

governments into buying less, while others will be tempted to cut support costs, spares, and ammunition stocks while retaining an impressive front line of equipment. This can only lead to serious doubts as to the durability of those particular forces in combat.

- Manpower constraints are beginning to affect military capability. This is most notable in the United States but in a few years demographic trends will also start to have a substantial effect on many other developed nations. In the Third World, the constraints, generally speaking, will not be in numbers but rather in skills.

- There is no slackening of demand for weapons of all kinds, both sophisticated and unsophisticated, in the developing world. Of the ten largest military establishments in the world, in fact, six are in the developing rather than the developed world — China, India, Vietnam, North Korea, South Korea, and Pakistan.

- NATO's theater nuclear forces are currently fewer in number and substantially more vulnerable than the equivalent systems on the Warsaw Pact side, and there is less certainty of the ability of aircraft to penetrate Soviet air defenses.

An illustrated, hardback version of this book is available in the United States from Facts on File, Inc., 119 West 57th Street, New York, New York 10019 for \$17.95.

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**THE FACE OF WAR: REFLECTIONS ON MEN AND COMBAT**, by Jean Larteguy. Translated from the French by Beth de Bilio (Bobbs-Merrill, 1979. 350 Pages. \$13.95). Reviewed by William M. Brooks.

Jean Larteguy has earned a reputation both in the United States and in France for his work as a war correspondent. He has also written several works of fiction based on his own experiences, with the most notable one being *The Centurions*, a novel about the war in Algeria, which was later made into a successful motion picture.

Born in 1920 of poor peasant stock, Larteguy was called into service by



the French Army in 1939. He was captured by the Germans, and although he was later released, he fled to Spain and then to Africa where he joined the Free French forces. He fought with distinction in Italy, southern France, and Germany. He later served as a lieutenant in Korea and in Indochina, where he left the service and remained as a correspondent for the next 25 years.

His book presents war as he has experienced it, and his reflections are most interesting. For example, on the war in Vietnam, Larteguy says:

"The Americans did worse than we (the French). The greatest error they made, in my opinion, was to send conscripts to Vietnam. The draftee asked himself what he was doing there so far from home. It was difficult in the extreme to make the little G.I. understand what his role was supposed to be, to inculcate in him in all his insularity the notion of his international responsibilities, to explain to him that the containment of communism in the world must be accomplished precisely on that peninsula, to him who frankly hadn't the least interest in strategy.

"The Americans had their helicopters, their B-52s, their napalm, and their delayed action bombs. Against them the communists used one weapon better: drugs."

The translator has made a few mistakes. In more than one instance, as an example, D.B. is translated as *Demi-Brigade* when it should have been *Division Blindée* (armored division).

On the whole, Larteguy's book is exciting and captivating reading. It is also a persuasive condemnation of war. I recommend it whole heartedly.

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**GESTAPO RUFT MOSKAU**, by G. Nollau and L. Zindel (Blanvalet, Munich, 318 Pages, DM 32). Reviewed by Colonel W. Gerhardt, Headquarters LANDJUT.

When the German armies were deep in Russia during World War II, Joseph Stalin decided to parachute Russian agents into Germany to gain

intelligence. These agents were mostly German and Austrian communists who had fled to Russia earlier. Later in the war, German POWs were used in increasing numbers.

Most of the agents were caught and readily gave all the information they had to their captors, thereby hoping to save their own lives. It did not help, although some were turned around and became double agents. Apparently the Russian high command never realized what was happening, for it continued to send agents into Germany.

The authors give a great deal of information about the agents and about the methods that were used to get the agents into Germany. On occasion, for instance, the agents were dropped by British aircraft because the Russians did not have the necessary long-range planes to do the job.

The book is amply documented and contains a solid bibliography.

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**FRONT FLINTLOCK TO RIFLE**, by Steven Ross (Fairleigh Dickinson University Press, 1979. 218 Pages. \$13.50). Reviewed by Lieutenant Harold E. Raugh, Jr., The Berlin Brigade.

In this scholarly, well-researched book, Steven Ross gives a detailed history of infantry tactics as they developed between 1740 and 1866. He also touches on the political, socioeconomic, and technological developments that influenced those tactics.

The Old Regime armies, organized as they were, were armed with inaccurate, short-range flintlocks. They fought in rigid, linear formations, and the soldiers were motivated by the fear of harsh punishment if they did not perform well.

As a result of the Seven Years' War, a reformist trend permeated the European armies, but no real tactical improvements evolved until the French Revolution. With the advent of Napoleon, a great expansion and modification of the artillery and cavalry arms took place, and flexibility became the keyword in the opera-

tions of the Imperial Army. But by 1808 Napoleon's tactical versatility had reached its zenith, and from then on he tended to rely more on mass than on maneuver.

The post-Napoleonic era was characterized by tactical revisions brought about by technological advances. Tactics had to change, with individual initiative, skirmish orders, and aimed fire becoming the hallmarks of mid-19th century warfare. The book ends with the Prussian victory at Koeniggratz in July 1866.

In addition to nine diagrams of important battles fought during the period of time that is covered by the book, it also contains a detailed bibliography which includes many primary sources.

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#### RECENT AND RECOMMENDED

**LANGUAGE OF VIOLENCE: THE BLOOD POLITICS OF TERRORISM.** By Edgar O'Ballance. Presidio Press, 1979. 365 Pages. \$12.95.

**NATO, TURKEY, AND THE SOUTHERN FLANK: A MIDEASTERN PERSPECTIVE.** By Ihsan Gürkan. National Strategy Information Center, 1980. 67 Pages.

**THE SOVIET THREAT TO NATO'S NORTHERN FLANK.** By Marian K. Leighton. National Strategy Information Center, 1979. 100 Pages.

**MIDDLE EAST AND NORTH AFRICA, 1980-81.** 27th Edition. A Europa Publication, 1980. 985 Pages. \$80.00.

**ARMS, MEN, AND MILITARY BUDGETS: ISSUES FOR FISCAL YEAR 1981.** By Francis P. Hoerber, et. al. National Strategy Information Center, 1980. 186 Pages.

**THE COMPLETE WARGAMES HANDBOOK: HOW TO PLAY, DESIGN, AND FIND THEM.** By James F. Dunnigan. William Morrow and Company, 1980. 224 Pages. \$14.95.

**WORLD MILITARY AIRCRAFT SINCE 1945.** By Robert Jackson, Charles Scribner's Sons, 1980. 160 Pages. \$10.95.

**WORLD CIVIL AIRCRAFT SINCE 1945.** By Michael Hardy. Charles Scribner's Sons, 1980. 128 Pages. \$10.95.

**AIR FORCES OF THE WORLD.** By Barry Wheeler. Charles Scribner's Sons, 1980, 112 Pages. \$11.95.

**F-86 SABRE.** By Maurice Allward. Charles Scribner's Sons, 1979. 128 Pages. \$9.95.

# INFANTRY LETTERS



## MILITARY SIDEARM

Dear Sir,

Reference Lieutenant Farnsworth's article (INFANTRY, November-December 1980, page 31), on the military sidearm — Bullseye!

Before the military again embarks on one of its ordnance follies — with the usual waste in American lives and the usual expensive cost overruns — let us hope and pray that common sense will again prevail in this needless headlong rush to scrap a time proven sidearm for some questionable, underpowered, unproven weapon.

The standard 9mm loading is, at best, a joke and only slightly better than throwing rocks. For those who say they can't hit anything with a .45, I have observed that they are usually best armed with a sharp stick.

ALLAN G. SKINNER  
Anchorage, Alaska

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## KEEP 1911A1 AS SIDEARM

Dear Sir,

I hope that some attention will be paid to the article by Lieutenant Farnsworth. Few if any battles have been lost because of a poor selection in sidearms, but that is small consolation to a soldier who is stuck with a sidearm that he can't depend on.

The Mk IV series mentioned is accurate, not because of a tighter fit between barrel and bushing, but because of the design of the collet bushing, which has spring "fingers" that decrease play. My own 1911A1, a 1943 Ithaca, was improved from some 20 inches at 50 yards to six-inch groups, simply by removing the old barrel and

replacing it with a new collet-bushing barrel.

Changing the old sights to somewhat larger, more visible sights would also be quite useful. And an ambidextrous safety would be useful to the "southpaws," but perhaps a redesigned safety that could be switched from one side to the other would be cheaper, less fragile, and just as effective.

As for the other suggestions, removing the grip safety would be of value only if the level of training were increased enough to make it unnecessary. Redesigning and then machining the safety so as to block the firing pin would probably prove to be too expensive, fragile, and complicated.

For the cost of a commercial barrel and new sights, \$75 per sidearm, the Army can make the present 1911A1 a fully effective sidearm of adequate caliber without the cost of selecting and procuring a new sidearm.

The arguments for going to a 9mm double-action automatic as a military sidearm are increased safety and increased accuracy because of less recoil. But the more complicated design of the double-action mechanism is more costly and more fragile than a single-action automatic. In addition, the hammer-dropping safety found on most double-action automatics is prone to accidental discharge, although the manufacturers will say otherwise. Also, the transition in trigger positions between the first shot and the second is very difficult to learn, and the firer either has to take more time or miss with one or the other shot — a difficult choice under match conditions, to say nothing of combat.

The 9mm, with less recoil, is supposed to enable the firer to hit the target more easily. But the last time I

shot, the lady who fired before me had no problem at all with her .45, though she was only five feet tall and weighed one hundred pounds. She just wrapped both hands around her pistol and leaned into it. No one had ever told her that it kicked too much. Her score was quite respectable, too.

Do instructors still start their lectures by impressing the students with the "ferocious" recoil of the .45 and the resultant difficulty of hitting the target with it? If so, they are doing their students a great disservice. (Unfortunately, the lieutenant's article gave the least space to the greatest problem, which is training.)

The drawing in the article was quite illustrating. Off-hand is fine on the range, where match rules require it, but anyone who teaches it as a method to be used in combat is hardly fit to be teaching at all.

PATRICK SWEENEY  
Ann Arbor, Michigan

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## MORE ON SIDEARM

Dear Sir,

Lieutenant Farnsworth must be commended for trying to arrive at ways the M1911A1 could be brought up to date. But there are several problems with his approach.

First of all, as a point of history, Georg Luger was not the designer of the toggle mechanism pistol that bears his name. He only modified the basic design of an American — Hugo Borchardt — by changing the recoil spring mechanism and won fame for it.

As to the Relative Stopping Power (RSP) formula, General Hatcher apparently had little faith in it himself, because it appears only in his earliest



and least known works. No mention of the theory is made in his latest and better known work, *Hatcher's Notebook*. Furthermore, the dimensional units of RSP have no physical meaning.

If the RSP formula is to be accepted as valid, it must work for all cases, and it doesn't. Take the example of a one-pound ball, three inches in diameter, thrown at a velocity of 25 feet per second, with a shape factor of one. (This probably equates to a baseball thrown underhand.) The RSP of this projectile is about 25 times that of a .44 Magnum, which is totally absurd! The use of a formula that was in doubt by its originator, one that gives unrealistic results, and one that no longer is used by any ballisticians can lead to shaky conclusions.

Perhaps a more realistic way to evaluate stopping power would be to examine the amount of energy transmitted to the target by the bullet. Measuring the bullet's velocity just before target entry and just after exit, the kinetic energy before entry and after exit could be determined from the formula  $KE = \text{one-half the mass times velocity squared}$ . The difference between the two energies would be the energy imparted to the target. Granted, this is a simplistic approach to a complex problem, but it is a realistic approach. Much work would have to be done to account for bullets that break apart, but at least experimental results could be used as a basis for conclusions as opposed to a formula that doesn't work.

The four problems with double-action semiautomatic pistols that are listed in the article give the impression that they are problems only in those pistols. Not so. The first two problems listed can be problems also with single-action semiautomatic pistols. The problem with long first-shot trigger pull has been almost negated by new pistols developed by *Fabrique Nationale* in Belgium and Heckler and Koch in West Germany. Also, the grip doesn't have to be changed between double and single action fire because only the trigger

finger should move. For the second problem, which was that the safety locks the trigger in the hammer cocked position, Lieutenant Farnsworth does qualify it with "on some models," but his lead-in to that section implies that the four problems apply to all double-action models.

Perhaps Lieutenant Farnsworth is unaware of the events taking place in NATO. The big emphasis is on interchangeability. The United States pushed the adoption of the 7.62mm and the 5.56mm cartridges as the standard rifle calibers, but it is a definite minority in NATO in using the .45 ACP as its pistol cartridge. One of the reasons for the U.S. move to adopt the 9mm Parabellum cartridge could be to show the other NATO countries that we can accept a cartridge they are using instead of forcing our choice on them. Maybe political decisions are being made instead of technical ones. It would not be the first time that has happened.

WILLIAM L. COGGER  
Lothian, Maryland

#### ANTITANK GRENADES

Dear Sir,

The article by Captain L. A. Altersitz entitled "Antitank Grenades" and the comments on it by the Weapons, Gunnery, and Maintenance Department of the Infantry School (November-December 1980, page 14) were causes for both joy and sorrow at the beginning of the new year. It is very good that Captain Altersitz has initiative and that you have introduced his ideas into the Infantry community so that they can be tossed around. However, the comments on his ideas and design do not do him or the community justice.

Apparently, Captain Altersitz knows very little about shaped charges and has tried to embody his ideas into a grenade concept by cutting and pasting pieces of information from what he has been exposed to. I find all his ideas good but poorly expressed. The comments against his article in the Editor's Note show that

the reviewers in the Infantry School apparently had even less knowledge and a significant "not-invented-here" attitude.

I suggest that you could help both Captain Altersitz and the reviewers by getting them some of the "tools" or information that will enable them to do a better job. A starting point for this help is the three-part article, "Shaped Charges Versus Armor," which appeared in the July-August, September-October and November-December 1980 issues of *Armor* magazine. These articles explain what shaped charges are, how they work, how they kill tanks, and what the trends in shaped charge applications have been for 40 years. The articles are heavily referenced with open unclassified sources that enable a serious reader to go further into the subject within popular material or deep scientific literature. Some of the references even cover earth and rock cratering.

Unfortunately, open articles cannot readily reference classified or unclassified limited distribution material, but you or the reviewers at the Infantry School should be able to get the old unclassified Engineering Design Handbooks on Warheads and Terminal Ballistics (AMCP 706-xxx Series). I am not sure whether Captain Altersitz can get these through the National Guard.

Let's keep the community thinking and suggesting, but let's also give them some tools to work with.

JOSEPH E. BACKOFEN JR.  
Battelle Columbus Laboratories  
Columbus, Ohio

#### RULES HAVE CHANGED

Dear Sir,

In the November-December 1980 issue of *INFANTRY* under the heading of Officer Career Notes (page 51), Lieutenant Colonel Gerald K. Griffin addressed specialty combinations for majors. Succinctly stated, his suggestion was that an officer should read DA Pamphlet 600-3, select a specialty

on the basis of his interests and goals, and seek schooling and assignments to fully develop his potential in that specialty. He concluded that the successful Infantry officer must be fully qualified in both specialties. That point was made very clear.

As a professional soldier, I strongly endorse this line of thought, but in following these guidelines I have found several pitfalls that need to be brought to the attention of other career officers.

As an ROTC instructor at Colorado State University, I use DA Pamphlet 600-3 as a textbook in my classes and take pride in knowing its contents. In a recent telephone conversation with Infantry Branch of MILPERCEN, I learned that the "Gospel According to DA" had been rewritten and that it no longer agrees with the rule book, DA Pamphlet 600-3 (September 1977). For example, Paragraph 42-3d (1) (h) shows clearly that ROTC instructor is a duty position within the Personnel Management Specialty (SC 41). Not so, according to Infantry Branch.

Under the Professional Development Guide Specialty 28 (Instructional Technology and Management), assignment opportunities for majors list ROTC instructor. Not so, according to Signal Branch. There are numerous other examples.

Although DA Pamphlet 600-3 has not been superseded, many changes to it are acknowledged at DA level.

Teaching ROTC courses has been an exciting and personally rewarding job for me. I am filling a most responsible position, or so I was told by the assignments officer at Infantry Branch in 1978. I was also told then that I would receive credit for SC 41 in my position teaching ROTC.

Obviously, the rules have changed, but we in the field have not been kept fully informed of what is happening in OPMS. I found out, quite by accident, when asking about future assignments, that I am not serving in either of my specialties and probably am not considered qualified in either SC 11 or SC 41. This is a hard slap in the face for a professional officer who

is serving where he has been told he is needed the most. I am dedicated to this job but disappointed that the OERs I get while teaching ROTC, regardless of the ratings, will reflect neither specialty nor troop time.

My major question, therefore, is: Will this assignment keep me from being eligible for selection for Command and General Staff College or from being fully qualified for promotion to lieutenant colonel when I have enough time in grade as a major? No professional soldier should have to decide between career progression and taking a job where he is most needed.

JAMES E. DYER  
Major, Infantry  
Fort Collins, Colorado

*EDITOR'S NOTE: MILPERCEN officials respond as follows:*

*MILPERCEN is aware of the shortcomings of DA Pamphlet 600-3 and is presently rewriting it by chapters. The first change, which deals with Specialty Codes 41, 42, and 43, is enroute to the printer and should be distributed in April. The initial change will also rescind those specialty codes that have been eliminated by previous changes to AR 611-101, such as the name change from Instructional Technology and Management to Training Development. The remaining chapters are in the process of being rewritten.*

*With regard to whether your current assignment will qualify you for promotion or for selection for schooling, an excerpt from the Letter of Instruction from Secretary of the Army, Clifford L. Alexander, Jr., to the CY 80 LTC AUS Promotion Board is provided: "Assignments have been made primarily to meet stated Army requirements. The key question the board must answer is: 'What is the demonstrated ability and indicated potential of this officer?' The board's actions should be consistent with the objectives of OPMS and reflect the policy that all assignments are important assignments."*

*The objective of OPMS is for all officers to become qualified in their two specialties, but it is certainly recognized that due to Army requirements, an assignment outside of one's specialties is very possible.*

## LAW OF WAR TRAINING

Dear Sir,

As the civilian attorney in the Judge Advocate Division, Headquarters, U.S. Marine Corps, responsible for Law of War matters, I read with interest Major John Spence's short comment on the Law of War in the September-October 1980 issue of INFANTRY (page 8). A former active Marine Corps judge advocate, I now serve as a Major in the Mobilization Training Unit (MTU) DC-08, the reserve unit that is directly responsible for monitoring the Law of War training program in the Marine Corps. This training program attempts to answer the questions Major Spence posed and, I believe, effectively integrates Law of War training into previously existing Marine Corps training requirements.

The Marine Corps efforts to implement the requirements of Department of Defense Directive 5100.77, dated 10 July 1979, are unique in three distinct areas. First, the Reserve establishment has been successfully used to provide a permanent cadre of experienced personnel knowledgeable in the Law of War. Last year a select group of Reservists went to Okinawa to participate in a Marine Amphibious Force exercise called Fortress Gale. These officers not only gave instruction to more than 3,000 Marines, but also tested 600 Marines concerning their attitudes toward the Law of War. The active participation of these Reservists was well received, and it clearly improved the overall effectiveness of the exercise.

Second, the new program is intended to integrate Law of War training into previously existing training schedules. This aspect of the program is considered a major achieve-



ment in that it places the major responsibility for training in the hands of professional training personnel and limits the role of judge advocates to one of giving technical advice. Since Law of War training is closely related to leadership training, the Marine Corps concluded that it is not a staff judge advocate function *per se* but is properly handled by S3 or G3 personnel.

Finally, this new program has adopted nine basic principles that promote adherence to the Law of War:

- Marines fight only enemy combatants.
- Marines do not harm enemies who surrender, but disarm them and turn them over to superiors.
- Marines do not kill or torture prisoners.
- Marines collect and care for the wounded, whether friend or foe.
- Marines do not attack medical personnel, facilities, or equipment.
- Marines destroy no more than the mission requires.
- Marines treat all civilians humanely.
- Marines do not steal; they respect private property and possessions.

These principles are patterned after "The Soldier's Rules," drafted by military experts at the European Red Cross Seminar on the Dissemination of Knowledge of the Geneva Conventions, held in Warsaw in March 1977. Conformance to these rules ensures obedience to at least the minimum requirements of the Law of War. While failure to obey these basic rules is obviously punishable by trial by court-martial, such a transgression is also indicative of an undisciplined force. Since a lack of discipline in a combat unit is a major obstacle to the success of any mission, the Marine Corps Law of War Training Program strives to promote adherence to these basic rules.

Because of the Marine Corps experience, I heartily concur in Major Spence's recommendations. Although any Law of War training program should rely upon judge advo-

cates for technical advice, it should clearly emphasize the responsibility of the military commander. Under international law, military commanders are responsible for training their units in the Law of War and, ultimately, for their conduct in combat.

WILLIAM T. ANDERSON  
Washington, D.C.

## GREAT ARMIES, LITTLE MINDS

Dear Sir,

In a recent message to a military journal, Army Chief of Staff General Edward C. Meyer paraphrased English philosopher Edmund Burke as follows: "Great armies and little minds go ill together." With that in mind, I would ask Lieutenant Colonel Gerald K. Griffin to reconsider his view on advanced degrees (INFANTRY, November-December 1980, page 51).

Colonel Griffin said that "an advanced degree benefits the Army only when it's in a discipline that supports one of the officer's specialties." While this may be true in essence, it is subject to considerable misinterpretation. If what he says is the Army's official policy, I consider it unfair for the following three reasons.

For many officers OPMS was not implemented until they had already completed their civil schooling, and they were often given an additional OPMS specialty outside of the area in which they had earned their advanced degree. In some cases, the officers had no say in the matter.

Next, the ORB block on civil schooling does not necessarily describe an officer's advanced degree. Allegedly, the computer only has certain codes to use. So, for example, a degree in counseling might translate into VOC-EDUC-GUID. (As an aside here, it might be worth while to note that 30 credits beyond the master's degree — called a Professional Diploma in some places and for some disciplines — cannot be translated for ORB purposes since the next level of

civil education the ORB recognizes is a doctorate.)

Finally, a number of those same officers did keep their military duties in mind when they sought an advanced degree. Unfortunately, they faced a limited choice of sanctioned elective courses at the Army's service schools and took those courses they thought would do them and the Army the most good.

Is there an all-encompassing, inclusive list that tells an assignment officer or a member of a promotion board which degree supports which specialty? I doubt it. But I do believe that most advanced degrees offered by reputable institutions of higher learning offer a lot to the soldier, regardless of the nature of his degree in relation to an OPMS specialty. More important, an advanced degree can broaden any officer's intellectual horizons, give him a better perspective of human nature and of people, sharpen his judgment, and increase his perception. Moreover, empirical studies of higher education show that, on the average "it enhances the practical competence of its students as citizens, workers, family members and consumers. It influences their leisure activities, health, and general ability to cope with life's problems."

Degrees in any area of the social sciences are especially useful to the soldier. The human factor remains critical, and if Colonel Griffin is serious about the need for a "master's degree in soldiering," then an advanced degree in social psychology or history might be more useful to the Infantry officer than one in physics or business administration, except for the most technical specialist. It might at least help blunt those recent and widely publicized charges that we are members of a military officer corps "that tends to equate leadership with administrative ability, to regard war as a firepower equation rather than a human equation."

Perhaps my strongest disagreement with Colonel Griffin is with his idea that "selections for promotion and schooling are based on an officer's demonstrated performance

and his potential, not on his academic abilities." This is not to say that I believe academic ability must be exalted to a prominent position in Army policy on promotions. But surely academic attainment in advanced civil schooling should be one measure in the "whole person" profile and one aspect of potential. To me, when an advanced degree is obtained without Army support and during off-duty time, it certainly rates the officer a big plus for the initiative and perseverance he has shown.

I won't ask for an analysis of our senior officers' academic achievements, although it would likely support the idea that advanced degrees at least don't hurt. I will quote Winston Churchill, though, who when asked, "Why are we fighting this war," answered, "If we were to stop, you'd know why." So it can be said for advanced degrees.

RICHARD J. RINALDO

Major(P), Infantry  
Fort Monroe, Virginia

ployment of armored fighting vehicles in Vietnam from 1945 to 1975. The emphasis of the book will be on the vehicles themselves rather than on accounts of unit actions in which they were involved.

I would like information on this subject from anyone who may have served in AFVs in the Republic of Vietnam. I am eager to recount the tactical and technical innovations that were applied to the AFVs to suit the particular theater of operations. I shall be very grateful if any of your readers would be willing to correspond with me on this aspect of the use of armor, especially the ubiquitous M113 and its many variants.

Congratulations on the continuing quality of INFANTRY magazine.

SIMON DUNSTAN

4 Tate Road  
Sutton  
Surrey SM1 2SY  
England

Captains Ratner and Boraas (pages 56-58).

Do not misunderstand. I think that technology and sophisticated weapons are an essential means of helping to even the odds in our target-rich opposition. But these two gentlemen state the case for bullet launchers as well as any I've heard. As a tanker, I have mixed feelings about doing away with HEP-T, WP-T, and APERS-T (105mm M68 type) ammunition in favor of APDS-T, APFSDS-T and improved HEAT-T exclusively. Weapons and rounds that were designed for a specific purpose are not obsolete simply because a particular threat no longer exists.

It seems to me that we should retain every capability we can instead of relying so heavily on high-dollar systems with less than the best suitability.

SAMUEL T. CONN

Captain, Armor  
Topeka, Kansas

## AFVs IN VIETNAM

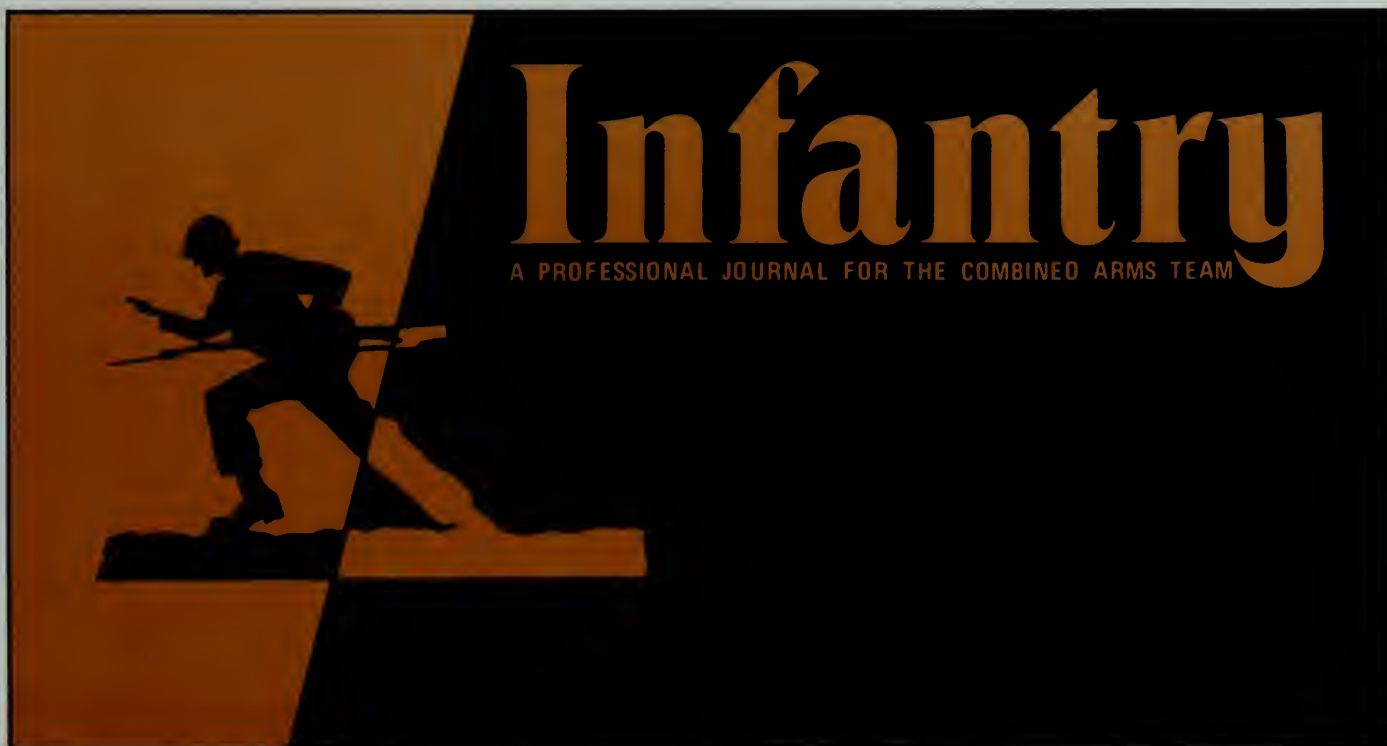
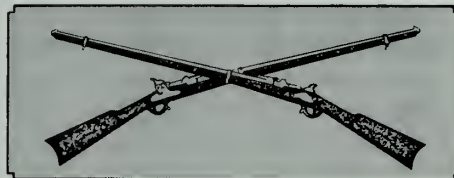
Dear Sir,

I am preparing a book on the em-

## LET'S RETAIN CAPABILITIES

Dear Sir,

Reference INFANTRY's letter section in the November-December 1980 issue, I couldn't agree more with





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# From The Editor

INFANTRY magazine receives many requests from the field for historical or current information about the infantry and subjects related to it. Because our staff is small (only four people), we cannot do the research required to completely answer the many questions asked. What we can do, though, is to refer the requesters to an agency that we think might be able to help them. In many cases, that agency is the Infantry School Library's Reference Section located in Infantry Hall here at Fort Benning.

Any of you who would like to deal directly with the library's research staff may address your mail to the Director of Training, ATTN: Infantry School Library, Room 102, Building 4, Fort Benning, Georgia 31905, or call commercial (404) 545-3390/544-4053 or AUTOVON 835-3390/784-4053.

Some of those who have called us in the past have found that many of the problems they face have been faced before by other infantrymen and that observations, corrective actions, and solutions can be found in the pages of the after-action reports and other reference sources in the Infantry School Library. Fighting in deserts or cities, the effects of heat and cold on men and equipment, and the problems of controlling battles without communications are some of the many subjects that have been written on.

Many original source documents are included among the books, periodicals, bibliographies, maps, and special collections held by the library. If additional material is needed, the library staff can obtain it from the Defense Technical Information Center and lend or pass it on to the requester.

Because much of the library's work is completed manually, extra processing time must be allowed. To help reduce that time and effort in the future, the library is undertaking a series of steps to phase its operation into an electronic research system that will give it access to data banks, video screen displays, and copying capabilities.

Regardless of the method used, the Infantry School Reference Library is available to infantrymen now to help answer their research questions.

E.C.S.

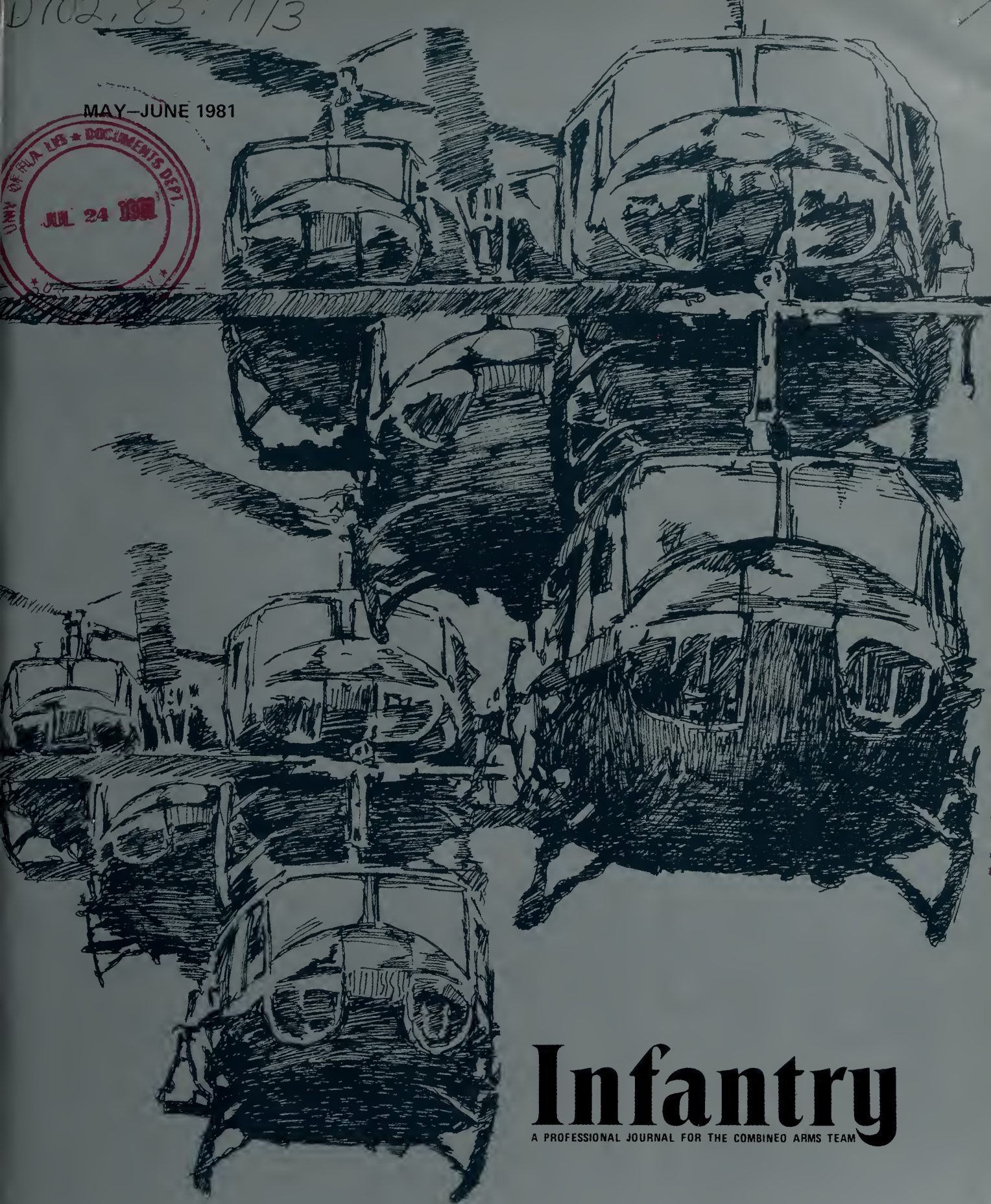
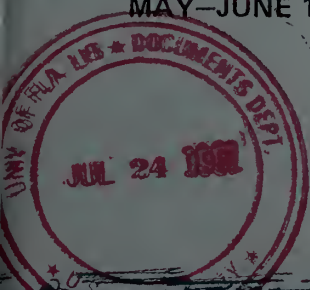






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MAY-JUNE 1981



# Infantry

A PROFESSIONAL JOURNAL FOR THE COMBINED ARMS TEAM



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## FRONT COVER

The infantry requires great versatility. The same infantry mounted in armored carriers and teamed with tanks for mobile operations must also be ready to move in aerial vehicles about the battlefield. But regardless of how the infantry moves or maneuvers, it shares with no other arm the ultimate mission of sustained close combat with the enemy.



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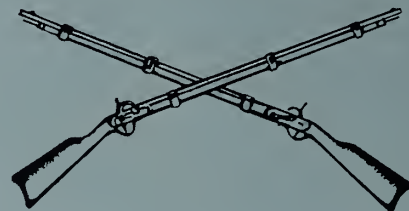
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# Commandant's NOTE



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**MAJOR GENERAL DAVID E. GRANGE JR.**

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## INFANTRY AND AIR DEFENSE IN THE AIR-LAND BATTLE

In future conflicts, Infantry accomplishments on the ground will be linked with Air Defense successes as an integral part of the combined arms battle.

Quantitatively, the Threat's aviation assets currently exceed our own; its fixed and rotary wing aircraft are available to support ground attack, reconnaissance, artillery observation, transportation, communication, liaison, electronic warfare, and medical evacuation missions. Threat doctrine states that front aviation will be used beyond the area covered by Threat artillery, and it makes a mixture of attack fighters and attack helicopters available for operations against forward area forces.

The first phase of the Threat's air battle will include sudden and overwhelming air attacks to gain air superiority to complement its land battle operations. During this period we can expect its high performance aircraft to attack at low altitudes, from 50 to 500 meters off the ground; to use terrain-following techniques to deliver napalm, cluster, and smart bombs; to fire cannons, rockets, and machineguns; and to launch missiles against our command and control centers and logistic support installations. The Threat's accompanying attack helicopters will attack at treetop level or lower with their on-board weapon systems of machineguns, cannons, rockets, and ATGMs and use terrain-masking techniques to pop up, fire, and reposition.

History records the successes of ground units against aircraft. During the Korean conflict, the U.S. Air Force lost 544 aircraft to combined small arms and air defense fire. This was five times the number lost in air-to-air combat. In South Vietnam, 410 fixed wing aircraft and 2,100 helicopters were downed by the same combination of ground fire. In the 1973 Arab-Israeli war, according to

ground commanders, the volume of small arms fire against aircraft was more important than the accuracy of that fire.

Most members of our Army either have never experienced attack from the air or have maneuvered only under a protective air umbrella provided by our Air Force. Because of the quantity and quality of the available Threat aviation, we will not enjoy free, uninhibited maneuvers in future conflicts. Our air defense elements and Air Force units will be heavily committed to defending against the Threat's initial air attacks. While the air battle continues, we can expect that the Threat land forces will be on the move, supported by their front line aviation consisting of attack helicopters and close air support aircraft. Our organic division air defense assets of Chaparral, Vulcan, Redeye, and Stinger will be fully committed throughout the battle area, and that means they can't support everyone everywhere all the time. We must realize that when we are under an air attack, we will have to defend our own units with our organic small arms weapons. We have the means available to us to do just that.

Regardless of their degree of readiness, their location, or prior warning, our infantry units must defend against air attack by using both active and passive means of defense. Active measures include placing effective small arms fire on attacking aircraft, increasing the speed of movement, and rapidly dispersing to concealed positions. Passive measures include prior knowledge of enemy tactics, selected and varied intervals of the march column, the use of camouflage, a proper use of terrain, and air guards. To survive air attack, our units will have to blend with the environment in defensible positions, use any and all available materials to aid their concealment, and develop fire discipline to prevent the unneces-

sary disclosure of their unit positions.

Under the circumstances of armed conflict, the following are the rules of engagement: Engage the aircraft if attacked, or as directed by the immediate commander. A dismounted infantryman carrying a rifle or machinegun and in immediate danger of air attack must know to take cover if he has time. If caught in the open, he must assume any supported firing position that will enable him to elevate his weapon and engage an attacking aircraft. If that aircraft heads directly toward his position, he should aim his weapon slightly above the aircraft's nose and participate in volume fire. (Volume fire means everybody shoots, whether mounted or dismounted.) If the aircraft crosses the firer's view, he should comply with his immediate commander's orders. If he is told to fire, he should lead the target and shoot. The lead distance will vary with different aircraft, but for fast aircraft (jets) the infantryman should aim in front of the jet by the approximate length of a football field; for slower aircraft (helicopters and fixed wing), his lead should be half that distance. Our junior leaders and our soldiers should know these basic techniques of firing against attacking aircraft.

The use of air guards is critical whether units are mounted or dismounted, moving or stationary. If we sight an enemy aircraft first, the odds are in our favor. Guards should be located throughout the unit area or column, and should be assigned specific duties and search areas. They should be rotated often to prevent long scanning periods from dulling their ability to spot aircraft.

If a guard is searching for aircraft in flat terrain, he should observe by moving his eyes in short sections across the horizon, working his way up and back across. If searching for aircraft in hilly terrain, he should use the horizon as a start point and prominent terrain features as reference points. He can cover this area best by moving his eyes in short sections up and down the sky, and all across the assigned sector of terrain. By using the same pattern, below the horizon, he can detect aircraft flying nap-of-the-earth. This may sound very basic, but it is vital.

Indications of where to look for aircraft may come from a forward area alert radar (FAAR) or target alert data display set (TADDS). It also can come from an on-the-spot terrain analysis or map reconnaissance. Certain terrain may restrict low level attacks from aircraft to a particular avenue of approach. A map reconnaissance of the area that the unit is moving into can reveal the far side of woodlines, ridgelines, or significant folds in the terrain out to 3,000 meters where Threat attack helicopters can lie in wait at their ATGM maximum range. The map can reveal restricted terrain features, defilade, and narrow valleys where a unit may be forced to concentrate and become a lucrative target for air attack. Our air guards should be told about these areas from which aircraft are most likely to attack, and they should be assigned those areas to search.

Each guard should be made aware of the following telltale signatures that reveal aircraft:

- Sun reflections from aircraft canopies or cockpit windows.
- Flashes from rotating helicopter blades.
- Smoke or vapor tracks from jet aircraft.
- Smoke or vapor trails from missiles or rockets fired from aircraft.
- Dust or excessive movement of treetops and brush in a particular area.
- Noise from helicopter blades or jet aircraft.

In the main battle area, our combined arms battalions will be called upon to move tactically to reinforce heavily threatened areas. To get them there, insure their survivability, and preserve their combat power will require solid air defense planning and execution. To defend this moving element, a mixture of air defense assets is available. The unit commander must concentrate his air defenses toward the front and rear of his convoy. He must coordinate the placement of Redeye or Stinger systems and ring-mounted machineguns. Primary search sectors must be assigned along with counter-ambush procedures and dispersion drills.

The Vulcan air defense system gives the ground commander air defense protection out to a range of 1,600 meters with M246 aerial ammunition, which self-destructs in the air, and it also gives him a ground fire capability out to ranges of 4,000 meters with the M56 ground fire ammunition, which explodes upon contact with an object. But the integration of the Vulcan system is not complete without the tie-in provided by the unit's organic small arms fire.

The use of the Vulcan in a ground role is important and should not be considered an outdated way of employing an air defense weapon. Tactical situations such as those that confronted the 8th U.S. Army in the early days of the war in Korea could very easily reappear for the commander of a rapid deployment force (RDF) task force. An excerpt from Brigadier General S.L.A. Marshall's report, "Infantry Operations and Weapons Usage in Korea (Winter 1950-51)," illustrates the value of anti-aircraft weapons in a ground role. "Some mention of the AA multiple mounts (quad-50 and twin-40)," General Marshall wrote, "is pertinent to any summary of infantry weapons effects in the Korean fighting because, despite the separate character of the AA arm, it is as an adjunct of infantry fighting that the AA gun has had its most decisive impact upon Eighth Army operations." And he continued by stating: "Based on the Korean record, it can be said that, except for the accurate laying on of an air strike employing napalm and rockets, no other weapon available for the support of infantry will suppress enemy firepower more quickly and fully, and in general discourage the enemy from taking any effective action."

The message here for us today is that brigade and battalion commanders should seek opportunities to allow attached or supporting air defense units to practice ground employment of the Vulcan in support of task force operations, both offensive and defensive. Then, when that desperate moment occurs on some future battlefield, our infantry and air defense artillery leaders will know what to do!

In closing, Threat aviation is strong in numbers and weapon systems and should be assumed to be capable of achieving local air superiority. Our combined arms maneuver forces must fight part of the air battle along with air defense artillery and Air Force units. Air defense training must be part of our everyday tactical training.

Our soldiers must be trained in aircraft recognition and air attack battle drills so that they can do what is expected of them under air attack. We must improve our use of organic small arms weapon fire in our air defense training. And we must know how to effectively integrate our infantry weapons and air defense guns.

The protection of our task forces from attack by enemy air power and the success of our front line maneuver battalions against the Threat's ground forces cannot be insured unless every member of the combined arms team is trained to instinctively use all available weapon systems to the fullest extent.



# INFANTRY NEWS



A NEW BASIC RIFLE MARKSMANSHIP program of instruction (POI) has been developed by the Army Research Institute, Litton-Mellonics (the contractor), and the Infantry School. To complete its field validation, the program was implemented within the 1st Infantry Training Brigade at Fort Benning in January 1980. It is now being used at two other Army Training Centers and by October 1981 all nine ATCs where initial entry training is conducted will be using it.

It is expected that soldiers trained under the new POI will show a significant improvement over those trained under the old POI in the basic marksmanship skills they need to properly engage combat targets. The new POI has several definite advantages over the old one.

First, the fundamentals have been simplified. Under the old POI, the soldiers were presented with several items but each was given the same relative emphasis. The most important items were not highlighted, and often emphasis was placed on items that did not have a major influence on bullet strike.

Through detailed analysis, weapon firing, and field experimentation, the many items the soldier has to keep in mind have been reduced to four critical ones that directly influence his ability to hit combat targets: steady position, aiming, breath control, and trigger squeeze. The new POI allows the soldier to practice these four fundamentals in a relaxed dry fire environment before he fires live bullets. New training devices such as the Weaponeer are used as much as possible.

A new silhouette zeroing target has been provided that is simple to use,

and, unlike the old target, it is easy to understand and the soldier can better relate it to downrange performance.

Now, using his long range sight at 25 meters, all the soldier has to do is to aim at the center of the scaled silhouette and make sight adjustments until his bullets hit the center of the silhouette. This should eliminate his confusion when he does not hit where he has aimed, because with the previous "Canadian Bull" target, the zero point was below the aiming point.

At the same time, the zero criterion has been tightened from 5.2cm to 4cm, because bullets that miss a 4cm area at 25 meters may also miss a silhouette target at 300 meters.

Another feature of the new POI is firing at 25 meters at silhouette targets that are scaled to represent targets at ranges of 50 to 300 meters. This provides feedback on bullet location, which improves shooting skill, confirms weapon zero, allows for practice firing at different ranges, and provides a good diagnostic check to determine whether a soldier has mastered the basics.

Because the lack of downrange feedback was found to be a major shortcoming of the old POI, an exercise has been designed that requires a soldier to walk down range to spot where his bullets hit. This allows him to confirm his zero at ranges of 75 and 175 meters and also teaches the effects of dispersion, wind, and gravity while providing for practice in hold-off. (Installations with known distance ranges should use them in place of this downrange feedback exercise.)

The use of the old standard record fire course, which consists of firing at 40 silhouette targets at ranges of 50 to

300 meters, was retained in the new POI with only minor modifications. Six of the 40 targets are now exposed at closer ranges, and the average exposure time for all targets has been reduced by 30 percent.

These changes in the record fire course were based on a Threat analysis that revealed shorter target exposure times and a greater density of close-in targets on the battlefield. In addition to providing more realism, the new POI also raises the marksmanship standards. For example, the number of hits required to qualify has been increased from 17 to 23, and the number required for an expert rating has been increased from 28 to 36.

The new POI is supported by a trainer's guidebook, which provides the information needed to teach the fundamentals of shooting.

If the new POI is implemented properly and emphasized enough by commanders at all echelons, it will be the first step in improving the marksmanship ability of our soldiers.

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THE AIRBORNE DEPARTMENT of the Infantry School is interested in obtaining historical information concerning active duty soldiers who participated in military combat parachute operations during World War II. The information will be used to set up a historical tribute to those soldiers still on active duty who served in the airborne community during World War II.

Any service member who is still on active duty and who participated in a military combat parachute jump or was assigned to an airborne unit during World War II is asked to contact the Airborne Department.

Information should be sent to: Director, Airborne Department, U.S. Army Infantry School, ATTN: ATSH-A (Administrative Officer), Fort Benning, Georgia 31905, or the information may be called in by telephone: commercial 404/545-1873 or AUTOVON 835-1873.

INFANTRY MAGAZINE IS AVAILABLE in microform from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

Individual articles or entire issues may be purchased in microform. Both silver and non-silver based film options are available. Additional information on prices and methods of reproduction may be obtained from University Microfilms International.

IN LATE 1979, TRADOC directed its service schools to form branch training teams and to send those teams to units and installations throughout the Army to build closer relationships between the schools and the field.

In January 1980, the Infantry School's Directorate of Evaluation sent out the first of its teams — known as Infantry Liaison Teams (ILT) — to a post in the United States. Since then, ILTs, each consisting of from two to five members, have visited active and reserve component units in the continental United States, Alaska, and Europe. Visits to other CONUS installations and to Panama, Hawaii, and Korea are scheduled for 1981.

The ILT visits are designed to tell the Infantry School how the units in the field feel about the School and its products. For example, the teams ask questions about how well Infantry School graduates are doing, if they were properly trained for their jobs, and if they can perform the tasks for which they were trained. The teams also try to find out if the units want the school's training literature or published infantry doctrine to be clarified or modified. Questions about weap-

ons and equipment are also discussed.

Minor problems and information gaps that surface during the ILT visits are dealt with on the spot. Other points that are brought out during the visits, when disclosed by an analysis of significant amounts of data, either provide the basis for modifying the school's courses, procedures, or priorities, or serve to validate existing programs.

The team visits are considered valuable tools. Not only do the results of the visits provide immediate benefits to the school and to the units, they also offer potential long range benefits for infantrymen everywhere.

THE INFANTRY SCHOOL is conducting its annual review of the curriculums of the infantry officer advanced and infantry officer basic courses. The review includes looking at such things as each course's purpose, prerequisites, content, type of instruction, and needed resources. The review also insures that the courses are being taught in accordance with TRADOC policy and training strategy.

For the advanced course, the school is looking at the possibility of including additional hours of chemical and nuclear training and of adding multiple integrated laser engagement system (MILES) equipment training. It is also considering a total review of the writing program.

The school is studying the combat support and staff subjects to make certain that they are as closely related as possible to the tactical exercises that are now being offered. It is also looking at a new extended computer assisted map maneuver system (CAMMS) exercise, which would come after all of the tactics instruction had been presented.

Finally, subjects such as training management, maintenance, property accountability, and personnel administration would be placed near the end of the course rather than at the beginning. The Infantry School plans to present the revised curriculum to

IOAC Class 1-82, which is scheduled to report to the school on 25 October 1981.

The basic officer course will be lengthened to 16 weeks, beginning with Class 1-82. This increase in the length of the course is an outgrowth of guidance received from TRADOC and from the recommendations of the Army's Review of Education and Training (RETO) study.

The data used for developing the new program of instruction has come from infantry liaison team visits, commander's comments, and comments from the field.

The school plans to increase the total number of hours devoted to core subjects and to decrease the number of hours that are now being used in the tracking program. Although some tracking is expected, the major emphasis in the core subjects will be placed on mechanized infantry tasks. The number of hours of instruction on maintenance and weapons will also be increased.

THE UNITED STATES ARMY COMMAND AND GENERAL STAFF COLLEGE (CGSC) at Fort Leavenworth, Kansas, celebrated its centennial on 7-8 May 1981. It is the Army's oldest school for the tactical instruction of officers.

The school was founded on 7 May 1881 as the School of Application for Infantry and Cavalry. It was originally designed to instruct officers "in everything which pertains to army organization, tactics, discipline, equipment, drill, care of men, care of horses, etc." Today's instructional program prepares mid-career Army officers (as well as officers from the Air Force, Navy, Marine Corps, and allied nations) for duty at higher staff and leadership levels.

THE ARMY HAS DESIGNATED the Abrams tank (M1) as standard (INFANTRY, July-August 1980, pages 4-5). The effective date of the designation was 17 February 1981.



OF THE 960 CADETS in the U.S. Military Academy's Class of 1981, 204 have selected Infantry as their specialty, the largest number to choose any specialty. The class will graduate on 27 May 1981.

Slightly more than half of the graduates will begin their military careers in the United States. Some 37 percent will go to Europe, and less than 10 percent will be stationed in Korea, Hawaii, Panama, or Alaska. The remaining cadets are awaiting assignments, including those who chose aviation as a specialty and the applicants for medical school.

A VIETNAM VETERANS MEMORIAL will be built on two acres of land designated by Congress alongside the Lincoln Memorial, and it will display the names of all 57,697 Americans who died in that war.

The memorial will be built from contributions received from individuals and organizations. Contributions can be sent to the Vietnam Veterans Memorial Fund, P.O. Box 37240, Washington, D.C. 20013.

THE PLATOON EARLY WARNING SYSTEM (PEWS), AN/TRS-2 (V), will be issued to units in the field beginning in May 1981 (INFANTRY, May-June 1978, page 7). The 197th Infantry Brigade will be the first unit to get the system.

PEWS consists of both seismic and magnetic detectors that can detect personnel and vehicles and also differentiate between them. An operational set has ten detector anti-intrusion devices, two radio receivers, two wire links, and other accessories, all packed in two carrying bags. PEWS will operate with a low false alarm rate in different types of terrain and under extreme climatic conditions.

It is intended for use by small military units such as patrols, squads, and platoons. It should prove of great assistance to soldiers who man listening posts, outposts, and other for-



ward area security positions. PEWS has been found quite effective when used with such other devices as the

night observation device-long range (NOD-LR) and with ground surveillance radars.

DEVELOPMENT WILL SOON BEGIN of an advanced prototype xerographic color map reproduction system; it will be called the Quick Response Multicolor Printer (QRMP).

Intended for use in printing a relatively small number of high-quality multicolor reproductions, the printer will be able to produce 24-inch by 30-inch maps at a speed greater than one per minute with a single pass through the printer. The single-color press now in use in the field requires far more set-up time and five passes through the printer for each five-color map.

The QRMP will weigh less than the current press, will be mobile enough to be moved from place to place, and will require less manpower and a lower skill level to operate and maintain.

THE FIRST HIGH-SPEED sled test of the Assault Breaker dispensing system was recently concluded at the Naval Weapon Center at China

Lake, California. Assault Breaker is a system that is being developed to defeat threat second echelon armor. (INFANTRY, May-June 1980, page 5, and January-February 1980, page 7.)

During the test the system dispensed ten submunitions of five different types: terminally guided submunitions (TGSM) with balloon parachute stabilization, TGSM with fin stabilization, skeet delivery vehicle assemblies (SDVA) with balloon parachute stabilization, SDVA with fin stabilization, and non-stabilized inert munitions.

A BIOLOGICAL AGENT DETECTION and warning system will soon be available to soldiers in the field. The two-part detection system consists of an automatic biological agent alarm and a biological agent sampler.

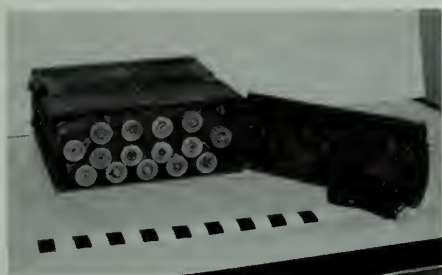
Scheduled for type classification next year, the system will be assigned to command and control centers down to brigade level.

THE INFANTRY BOARD has submitted the following news items:

• **XM621 Ammunition Box.** During the operational testing of the infantry and cavalry fighting vehicles, the test data showed that the test crews used an excessive amount of time loading the 25mm gun. The difficult handling characteristics of the ammunition box was listed as a contributing factor.

Accordingly, the program manager for the vehicles had the ammunition box modified, designated it the XM621 ammunition box, and recommended that a test be conducted to see if it could function properly in its intended role and if it could be used effectively by soldiers.

The XM621 is a hermetically sealed, expendable, plastic shipping container. Seven of them can be stowed in the stowage compartment beneath the vehicle's floorboards, and seven can be stowed on the vehicle's sponsons. The major differences between the XM621 and the old



25mm ammunition loaded in the XM621 ammunition box.

box are: The XM621's lid is hinged and fixed to the body; its handles and latches are permanently attached to the lid; the interior cartridge separator has been reinforced; and its exterior dimensions have been increased by about one-fifth of an inch.

The Infantry Board conducted the test at Aberdeen Proving Ground using a nine-man IFV-trained squad as the test soldiers. After receiving instruction on the proper loading procedures, the test soldiers, who were wearing temperate weather clothing, were timed as they loaded the 25mm gun with the fourteen

boxes of ammunition. (It should be noted that their task represented the worst-case situation wherein the main gun has been completely emptied and the additional ammunition is still packed in the ammunition boxes.)

The test results will be used to support the project manager's type classification of the XM621 ammunition box.

Captain James D. Cambron, Small Arms Test Division, was the test manager.

• **Upper receiver for M16 Rifle.** The Infantry Board recently tested several prototype M16A1 upper rifle receivers that had been developed by the Army's Armament Research and Development Command (ARRADCOM). The Command used the new protective coating process on the aluminum upper receiver of the rifle. The only difference between the prototypes that were tested and the standard upper receivers now in use was in the manner in which they were hard-coated.

Ten Ranger students were issued rifles that had the prototype upper receivers, while another ten students were issued rifles that had the standard upper receivers. The students carried the rifles every day during their training program, subjected them to typical field and training abuse, and fired blank ammunition from them.

Forty additional M16A1 rifles were assembled with the test and standard upper receivers (20 each) and were issued to soldiers undergoing initial entry training. During their training, these soldiers disassembled, assembled, and cleaned their rifles, and fired them in both their semiautomatic and automatic modes.

At the end of the testing program, the prototype receivers still retained their hard, black finish, while the finish on the standard receivers had become dull and gritty. But there were no real differences between the two receivers in terms of wear, corrosion, or thermal effects.

The test results were sent to AR-RADCOM for evaluation.

The test manager was Sergeant First Class Samuel J. Whitt, Small Arms Test Division.

• **Mortar Fire Control Calculator.** The battlefield of the future will be fast moving and highly fluid. Speed and accuracy will be essential to locating and attacking targets.

The current standard graphical equipment used in mortar fire direction centers (FDC) to compute mortar firing data does little but provide the operator with drafting tools.



Mortar fire control calculator.

The Infantry Board recently tested a small, rugged computer called the mortar fire control calculator (MFCC). It is a solid state electronic computing device that can be powered by batteries or by an external power source. It has been designed to provide quick and accurate firing data for all types of Infantry mortars and to accept forward observer firing data from the digital message device over tactical radio and wire communication networks.

The test was conducted in a realistically simulated tactical environment. The test soldiers used the MFCC to transmit and receive information during fire missions, tactical displacements, and road marches. The test activities were conducted during the day and at night.

The test results will be considered



by those involved in the development acceptance in-process review in making decisions concerning the production and type classification of the system.

Captain John M. Hames, Heavy Weapons Test Division, was the test manager.

**THE NEW STINGER** air defense guided missile system is now being issued to units in the field (INFANTRY, March-April 1980, page 7). The first units to get them are the combat maneuver elements of the U.S. Army in Europe.

The Stinger replaces the outwardly similar Redeye missile system that has been in use for several years. But the Stinger offers some distinct advantages: it can take on faster targets at greater range, including those that might fly directly toward the gunner, and it has built-in electronic systems that are compatible with all NATO aircraft, which aids the gunner with his aircraft identification.

The missile uses a passive infrared seeker and a solid fuel rocket motor. It comes from the factory sealed in a fiberglass tube, which is converted to a launcher by the quick attachment of a reusable gripstock that contains the firing circuits and IFF electronics. Once the missile is fired, the launch tube is discarded. The missile, launch tube, and gripstock together weigh about 35 pounds.

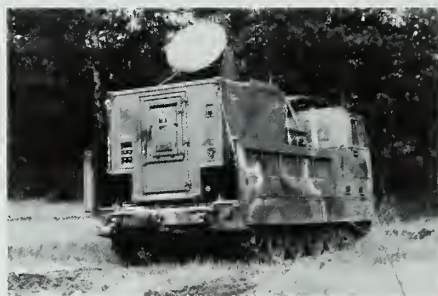
**THE 1st CAVALRY DIVISION** is the first Army unit to achieve full operational capability with the new artillery-locating radar, the AN/TPQ-37.

This is the first radar set that can locate single or multiple hostile artillery and rocket launchers at their actual firing positions. A combination of radar techniques and sophisticated computer-controlled signal processing allows the radar to detect and track the hostile projectiles simultaneously. This information is then forwarded either manually or automatically to an artillery fire direc-

tion center for use in directing accurate counter fire.

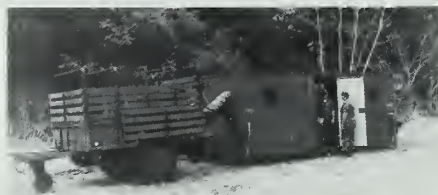
The new radar system will be issued to field artillery target acquisition batteries at division level. Full scale production of the set will start at the end of the present extended low-rate initial production period.

**THE HIGHLY MOBILE** Ground Radar Emitter for Training Aviators (GRETA), shown in the accompanying photograph, transmits signals that allow an aviator to try out the latest in threat avoidance and evasion techniques in a realistic training environment.



The self-contained GRETA can tackle rough terrain and is presently being tested at Fort Rucker by the Aviation Development Test Activity of the Army's Test and Evaluation Command.

**TWO TEST SOLDIERS** complete their final inspection of the Army's new one-side expandable rigid wall shelter that has an environmental control unit attached to it.



The shelter is designed to serve as a standard, portable shelter that will eliminate the Army's need for many specialized shelters. It is now undergoing environmental testing at the Army's Tropic Test Center in the Republic of Panama.

**TWO INTEGRAL ITEMS** in the Army's training system for chemical defense are in the final stages of developmental testing. They are the XM11 liquid airburst projectile simulator (SPAL), which simulates an artillery airburst chemical agent attack, and the XM267 projectile launcher from which the SPAL is delivered.

The launcher, which has five tubes for the SPAL bottles, is used upwind of a target. Training plans call for the two devices to simulate the contamination of troops, vehicles, or terrain with a liquid agent simulant.

**THE PRODUCTION** of one of the Army's newest smoke grenade launchers is now under way. Designated the M243 and obtained under a standardization loan agreement with the United Kingdom, the launcher features a pair of four-tube aluminum dischargers mounted on a vehicle. Red phosphorous grenades are electrically fired from the launcher to provide a visual smoke screen within two to six seconds when they are fired in salvo.

The M243 launcher system has been adapted to the Improved TOW Vehicle (ITV).

**THE ARMY IS PRESENTLY** evaluating a binocular radio that is supposed to provide fast, line-of-sight, secure tank-to-tank communication even in bad weather through a two-mile range.

A conventional pair of binoculars has been modified so that the optics on one side of the binoculars have been replaced by an antenna and a transmitter/receiver. The remaining optics provide the line-of-sight alignment between radio units so that as long as one person can see another at an appropriate range, they can communicate.





## TANK KILLERS:

### Infantry Supine



ROBERT C. SMITH

*EDITOR'S NOTE: This is the third in a six-part series. The remaining articles in the series will be published in our next three issues.*

On 1 September 1939, German troops crossed the Polish border and, after Anglo-French demands for withdrawal were made and ignored, the British and French declared war against Germany. Thus World War II began.

The Poles, with their limited anti-tank capabilities, resisted bravely but not very effectively. They used their horse cavalry in mass charges against tanks with horrible results. Even so, the Poles knocked out some German tanks, especially the PzI AND PzII machinegun tanks. As for the minuscule Polish armored force, its few light vehicles were eliminated almost totally, usually by German antitank gunners, and the Germans took heart at this vindication of their antitank equipment and doctrine.

Before Germany could turn against the French, though, weather inter-

vened and made campaigning almost impossible. The period of the phony war began, with action limited to some long-range shelling back and forth and a considerable use of loudspeakers. In the air, both sides confined themselves to purely military targets.

In Germany the tanks lost in the Polish campaign were soon replaced by new, more modern vehicles, and a plan was developed that would take most of Germany's tanks and send them hurtling through the forests of the Ardennes, an area once characterized by a French general as almost impassable for motorized units. The plan, like all great military plans, was simple: once through the French defenses, the German tanks would swing up toward the Channel coast to bag the bulk of the French mobile units and all of the British Expeditionary Force (BEF) in a gigantic pocket.

Meanwhile, at the lower echelons, French and British soldiers contributed to the war effort by singing an

inane little ditty about hanging out their washing on the Siegfried Line, while their German counterparts sang about driving on England.

In early May 1940, after nine months of war, the ground in the west became firm enough for the tanks, and in short order, the numerically and technologically inferior German Panzer divisions were driving headlong toward the sea. Brushing aside the weak French reservist divisions that attempted to bar their way, the Germans plunged deep into the Allied rear. It is a sad commentary on the state of the defenses that the German advance was hindered more by the refugees who crowded the roads and the masses of soldiers who surrendered than by the Anglo-French armies.

The BEF tried to stand for a few hours against the onslaught of the numerically inferior Germans. But as its leaders cast increasingly worried eyes toward the rear, and with the collapse of Belgian resistance, the BEF hurriedly withdrew to the



beaches of Dunkirk. Once there, the British profited from German indecision and managed to evacuate the bulk of their troops — most of whom even left their personal weapons behind — while the Germans waited for air support.

The Dunkirk withdrawal was a defeat, pure and simple, caused by armor that had the ability to overrun the British units at will.

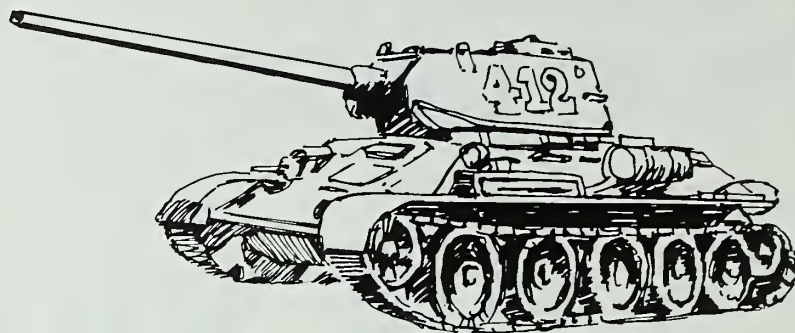
## BLACK DAYS

For the front line Allied infantrymen, these were black days indeed. Even the lowly PzI could roll over the infantry with relative impunity. The antitank weapons that were distributed among the Allied troops were too few and too inefficient to stop the German attack.

But the Germans did not have everything their own way. A few Allied counterattacks were launched, the most successful of which were combined arms or pure tank assaults. It was obvious that the Germans were no more immune to a concerted tank attack than their opponents. In fact, one of these counterattacks so rattled the commander of a German division that he considered ordering an abject withdrawal. Fortunately for the general, he recovered quickly and his infantrymen and artillerymen stood fast against the enemy attacks until their 88mm guns could be brought to bear against the counterattacking force.

After Dunkirk, the rest of the campaign was easy. A few isolated, unsupported French units partially redeemed their national honor by forming roadblocks that slowed the Germans, but they soon fell to the fast-moving German tanks and the well-trained infantry that supported them.

When the campaign ended, the Germans carefully analyzed their victory and wisely came to the conclusion that their antiarmor equipment was simply not good enough to defeat the enemy's tanks. It had been more a matter of superior German training and morale that had brought them



Soviet T34/85 tank (winter 1943-1944).

victory in the west. The most obvious means of giving the German infantrymen a fighting chance against enemy armor, therefore, was to speed up the issue of the new 50mm antitank gun, the PAK38, which had been languishing on a back burner for several years. The first issues of this new antitank gun were made late in 1940.

The British, driven off the continent in disorder, were forced to contemplate, for the first time in almost a century and a half, the possibility of an enemy amphibious assault on their island home. The atmosphere at all levels bordered on panic. Anyone who could carry a gun or was able to walk a reasonable distance was given a bewildering assortment of antique weapons and untried equipment and told to stand and die when the Huns arrived.

Fortunately for the men they were issued to, most of these devices never had to be tested in battle. The Molotov Cocktail, fondly named by Finnish troops for the man who helped trigger the invasion of their country, was one of the more popular devices. In addition, a variety of bombs, grenades, and spigot mortars were issued to the Home Guard, but most of these weapons represented sterile and dangerous lines of development.

Perhaps the most dangerous weapon of the war was the No. 74 antitank hand grenade, the infamous sticky bomb. This monstrosity contained roughly six kilograms of nitroglycerine in liquid form, and it was

coated with a thick layer of sticky material — bird lime. When not in use, the grenade was carried inside two half-spheres of metal, which had to be removed to make it ready to throw. The problem was, with the sticky material exposed, a careless brush would stick the weapon to the user as effectively as it would to a tank, with even more terrible results if the user had been so careless as to arm the grenade.

In the field of artillery, the British two-pounder gun turned out to be almost useless against German armor; and it was excessively expensive to produce. Unfortunately, because they had nothing better readily available, the British were forced to keep the gun in production. The bitterest irony is that a replacement weapon, the six-pounder, had been developed, tested, and approved long before the war, but it had been shelved on the assumption that the two-pounder was good enough.

It was not until late 1941 that the initial issues of the six-pounder could be made. Unfortunately, by this time, the newest German tanks were too much for the six-pounder, and the cycle of infantry inferiority began once more. It was not until 1943, when the six-pounder was replaced by the new 17-pounder, that British infantrymen began to get enough powerful weapons in their hands to make a difference.

In the United States, the shock of the German armored victories in France, and later in the Western Desert, made the Army's leaders look

carefully at the antitank equipment they had. Their 3-inch gun project was hopelessly mired in both production and ammunition problems that would plague the weapon throughout its service life. And since the 3-inch gun seemed to be a long-term project, the U.S. approached the British and obtained the plans for their six-pounder, which the U.S. proceeded to copy almost totally, except for an increase in barrel length. This became the U.S. Army's 57mm anti-tank gun.

By then it was 1941 and the German Army was on the march once more, this time against their one-time ally, the Soviet Union. In what was certainly the greatest armor campaign in history, the Germans practically destroyed the entire Soviet army, but like the legend of the dragon's teeth, a new Soviet army sprang up to meet the Germans head on and stopped their attack in its tracks. The Soviets were aided by a combination of severe weather conditions, the

strategic indecision of the Germans, the German diversion of troops from strategic goals to purely tactical ends, and finally by the full-scale introduction of their own T34 tank.

For the Soviet army, the T34 proved to be an ideal combination of durability, mobility, and firepower, and it was almost invulnerable to German antitank weapons.

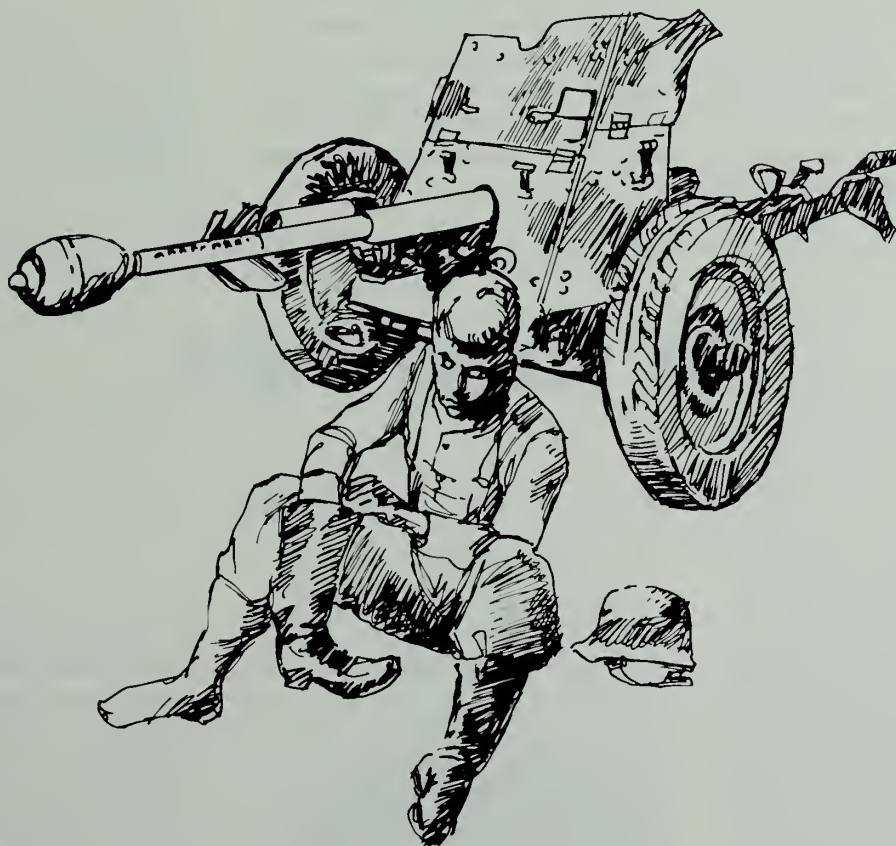
Tank Killers: Infantry Supine (101/80) galley 2

The Germans withdrew, abandoning much of their equipment as it bogged down, but through the skillful use of demolitions and an adroit employment of their shaken but still not demoralized troop units, they managed to conduct a mobile defense based on the fortified villages they occupied. In short order, the Soviet offensive petered out, saving the Germans from the ultimate disaster.

By the time the campaign of 1942 got under way, the technology of the tank had once more gained the upper hand, and the infantry was reduced to

almost total impotence. Shocked by the Soviet winter campaign, the Germans responded by making their first issues of hollow charge grenades and ammunition — high-explosive antitank (HEAT) rounds — to every unit. Because the PAK38 (50mm) and the PAK40 (75mm) guns were not available in large numbers, the Germans adopted a brilliant way to extend the service life of their widely available PAK36 (37mm) gun. The answer was the *Stielgranate 41*, which was a large capacity hollow charge warhead mounted on a large stick that was fitted into the barrel of the gun, with fins that fitted over the barrel itself. With this device, and with some luck, the Germans could engage armor out to 800 meters, although normal engagements took place at ranges of 250 to 300 meters. This device could penetrate up to 180mm of armor at those ranges.

On the other hand, throughout World War II, the Soviets relied primarily on their artillery, which be-



German 37mm gun converted for firing hollow-charge rounds.



came increasingly valuable as the value of their manpower declined. To remedy this situation, they simply pulled antitank artillery out of the infantry divisions and centralized it into specially trained antitank brigades. The hapless Soviet infantryman was reduced to trying to stop German armor with the totally inadequate PTRS and PTRD antitank rifles. Exactly why the Soviet infantryman was so poorly served by the country's designers is one of the minor mysteries of the war, since we know that the Soviets were aware of the penetrating ability of the hollow charge.

The Japanese and Italian infantrymen were even worse off than their Soviet counterparts, insofar as antitank measures were concerned. Neither army developed a truly effective antitank weapon that was issued in large numbers.

Until late in the war, then, the designers favored building bigger and heavier guns that could throw out bigger and heavier rounds of ammunition to penetrate more and more armor. But they paid a price for it — the weight of their guns soon increased beyond the point where a gun crew, using its own muscle power, could move its weapons over any but the most level, hard terrain. Increasingly the antitank gun became

another type of specialized artillery and was taken from the infantry.

Besides the tactical disadvantages of increased weight and complexity, there was the increased cost in terms of money and manufacturing capacity, which made the antitank gun too expensive to risk at the front.

One answer to the problem was the development of the recoilless rifle, first used by German paratroopers during their assault on Crete. These early examples were looked on as a means of letting special troops, especially paratroopers and mountain troops, have some sort of decent-sized artillery support; in this case, their antitank capability was secondary and not really significant.

The British weren't far behind, especially after they acquired several of the German guns to spur their effort on. As a result, one man, Sir Dennis Burney, came to dominate the work in British weapon development. Sir Dennis was certainly a prolific designer of weapons that ranged from the 3.5-inch design all the way up to a whopping big 8-inch rifle, but he suffered from the fact that none of his weapons were ever issued during World War II. Thus, his new weapons were never allowed to show their mettle.

The United States was better served by its designers, who managed to produce not one but two effective recoilless rifles, the T15 (57mm) and the M20 (75mm). Although both were used during the closing stages of the war in Europe, they had no real chance to show what they could do consistently against enemy armor. In the Pacific, for the same reason, the weapons were used mainly against enemy bunkers.

Although during the early World War II years the hollow charge round seemed to offer the best answer to the infantryman's problem, it was some time before a proper means of delivery was developed. Too many people favored the classic gun approach, which was really not a good way to deliver a hollow charge round.

The answer would come shortly in the form of one of the oldest weapons known to man. *(To be continued)*

**ROBERT C. SMITH** graduated from Rutgers University in 1970. Now living in New Jersey, he has long had an interest in military history and has been published in several military magazines. The material in this six-part series will be part of a book that will deal with the effect that technology has had on tactical and operational considerations.

## WE versus THEY



COLONEL WILLIAM J. NORTHQUEST

Ever run into a battalion command sergeant major (CSM) snooping around in your company area? Or a zealous staff officer digging in your motor pool or supply room without your knowing he was there? Did you ever think the sole aim of the CSM or staff officer was to find things wrong and report back to the "old man" to

make himself look good?

Pretty common problems, aren't they? We see them every day, and they can be disruptive, to say the least. Unfortunately, they can also cause a great deal of animosity to build within a battalion and can easily lead to a "we versus they" attitude that can destroy any sense of unit

spirit and cohesion.

Some commanders do not seem to be perceptive enough to pick up the development of the we-they attitude in their units. But the symptoms are usually there — a company commander complains that no one checked through his orderly room first; a staff officer at a meeting be-

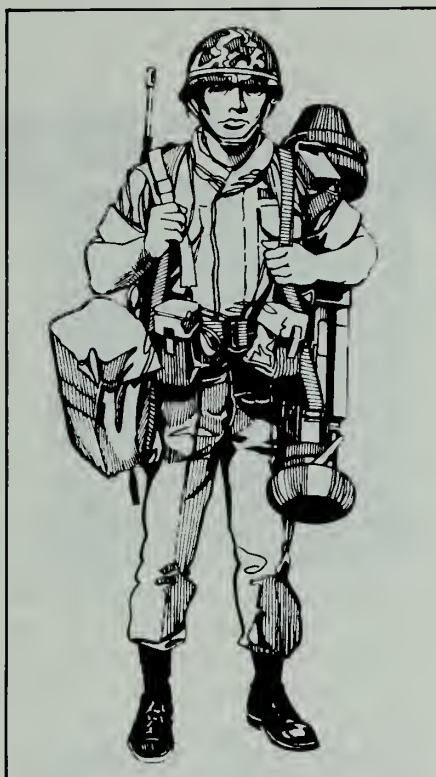
rates this company or that one because it failed to comply with instructions; there is a lack of sociability between company and staff officers at battalion parties; or maybe there is even a bit of "back stabbing" at the bar on Friday night.

For the smart commander, solving the problem before it starts is fairly easy. All he has to do is to make sure that everyone understands the responsibilities and authority he has given the CSM and his staff officers, and the working relationships he expects between the CSM, the staff, and the company commanders. The key is for everyone to know where and when the CSM and the staff officers can operate and the ground rules everyone is expected to follow. Here is how one battalion commander solved his problem and achieved success.

Shortly after assuming command, the commander called all of his staff, company commanders, and CSM together and outlined the following for all to hear:

- To the CSM: *You are my second pair of eyes and ears. Rarely will we go around together and look at the same thing. You have the authority to go anywhere in this battalion, and that includes training areas, motor pools, dining facilities, and supply rooms. If you want to, you can check in with the company orderly rooms first, but it is not required. But if you do find something wrong in a company, you will tell that company commander or first sergeant before you tell me. Certainly not everything you find wrong will need to be brought to my attention. You be the judge, but at least tell the commander or first sergeant. Your responsibilities are . . .*

- To the staff: *Your responsibilities are spelled out fairly clearly in FM 101-5. In addition, you are to take the load off the company commanders' backs and help them wherever possible. To accomplish this, you will need to inspect company operations and activities. You will never go into any part of a company without first checking in with the orderly room.*



*When you find something wrong, you will try to help the company solve its problem. Like the CSM, you will not tell the executive officer or me about a company's problems without first informing the company commander or first sergeant of what you found. You have the authority to say yes to a company commander's request (provided it does not violate my policies or the policies and regulations above us). With the exception of a request that violates a policy or a regulation, you do not have the authority to say no; that is reserved for me. The CSM is the senior enlisted man in this battalion. All staff actions that affect the troops will have his input before they are put in final form.*



- To the company commanders: *The CSM is an experienced noncommissioned officer. He and I talk daily. He, better than anyone else, knows my thoughts and feelings. If he approaches you with a suggestion or recommendation, you ought to think twice before discounting what he has to say. He can help you immensely in this regard.*

The results were impressive. Everyone knew the limits of responsibility and authority and the ground rules on how they were to work together. So when a company commander was told that the CSM was in his motor pool looking around, he did not assume a defensive role; he knew that he would be the first to hear of any problems uncovered and that he would not be stabbed in the back. He would have time to look at the problem and its possible solutions before the battalion commander discussed the matter with him.

This same kind of problem can appear within a company as well. A company commander needs to be alert to the fact and make sure everyone knows where the company executive officer, first sergeant, supply sergeant, and motor sergeant fit into the working relationship.

Clearly, a we-they attitude has no place in any unit, and it can be done away with if each man understands what the others do and exercises common courtesy in his working relationships with them. A battalion commander has a significant part to play because he must define the roles and relationships he wants his people to have. We versus they — none of us needs it!

**COLONEL WILLIAM J. NORTHQUEST**, formerly Chief of the Leadership Division, Command and Tactics Department, U.S. Army Infantry School, is now commander of the 1st Infantry Training Brigade at Fort Benning. He is a graduate of the Command and General Staff College and the Army War College and has served as a battalion commander with the 3d Infantry Division in Germany.





# LANCERO

CAPTAIN DAVID A. MORRIS

Each year, the Army of Colombia in South America conducts three ranger courses at its Lancero School near Bogota. One of these is designated "international," and students from most of the countries in the Americas, including the United States, attend it.

The Lancero School dates from 1955 when a small group of Colombian officers attended the U.S. Army Infantry School's Ranger course at Fort Benning, Georgia, and returned to serve as cadre for their own course. The annual international course dates from 1963.

Because the course was modeled after the Infantry School's course, its training is comparable. The addition of more exacting barracks and personal inspections, severe harassment, and the possibility of contact with genuine guerrillas in the area make it unique. The especially harsh weather of early September when the 12-week course begins adds to its challenge.

The course is divided into three phases:

- Phase 1. Instruction and preparation (five weeks).
- Phase 2. Patrolling (five weeks).
- Phase 3. Airborne training or side trips (two weeks).

The first phase is a combination of the U.S. Ranger course's city week, Camp Darby, and Mountain Phase (or its first five weeks) without the patrolling. The students rise at 0400 to participate in physically demanding training in temperatures of 100

degrees Fahrenheit and above. They also attend classes on such subjects as demolitions, communications, first aid, swimming, mountaineering, personal defense, and map reading. They must memorize the Lancero creed and songs, and they are called upon often to recite or sing.

Any deficiencies in the students' barracks or personal inspections may mean they have to do additional physical training in the evenings. After this and barracks clean-up, followed by another inspection, lights are turned out at 2400 or 0100.

## PATROLS

The first week of Phase 2 consists of short patrols directed by the cadre. The next two weeks include two four-day patrols led by different students over terrain that varies from low, wet areas to mountain ranges. Although these first patrols are conducted in areas where guerrilla activity is not expected, the students carry live ammunition in case of contact.

The "graduation" patrol, which lasts from 12 to 15 days, is in an area of known guerrilla activity. These patrols from the international course are included in actual counter-guerrilla operations conducted by other Colombian Army units, and on several occasions, there have been fire fights between Lancero student patrols and guerrillas.

The terrain for this last patrol is very mountainous and ideal for any

insurgent force. The weather, the high altitude, and insufficient rations make the patrol very challenging.

For Phase 3, the class splits into two groups. The first group, officers who are not airborne qualified, must go through the two-week jump school, which is almost identical to the one conducted at Fort Benning, with the exception of the 250-foot tower.

During this time, the second group, made up of airborne qualified officers, has an opportunity to visit several military bases and tourist attractions as guests of the Colombian government.

At the end of Phase 3, the two groups are reunited at the Lancero School, where they conduct an airborne exercise to celebrate the end of the course. A Lancero propblast ceremony is given after each graduate receives his Lancero Badge and parachutist wings.

The two places normally allotted to the United States for each international course usually go to Army officers who meet the course's prerequisites. Air Force officers also have attended in the past, though, and in 1979 the first U.S. Marine attended and successfully completed the school.

Our officers find the course demanding in several ways: The change in climate and in diet tends to inhibit normal physical abilities; the course is conducted entirely in Spanish; and, of course, there are a number of cultural differences.

Any officer who is thinking of volunteering for the Lancero course must be willing to accept some quite different ways of doing things. These include a lack of training safety measures and harassment that sometimes approaches humiliation. He must also be willing to place himself in the position of a student to re-learn things that he already knows.

The course offers an excellent opportunity for a Special Forces officer or one who wants to become a foreign area officer to work in a totally foreign environment. Certainly such an officer will learn more about the Latin American armies and cultures than he could ever learn in a classroom.

The officer who successfully completes the international ranger course gains many rewards besides his Lancero badge and his Colombian parachutist wings. These rewards in-

clude the friendships he forms with foreign officers and the opportunity to represent his country and his branch of service to our allies in the western hemisphere.



**CAPTAIN DAVID A. MORRIS** is assigned to the 3d Battalion, 7th Special Forces Group at Fort Gulick, Panama, and previously served as a platoon leader in the 5th Infantry Division. A graduate of the United States Military Academy, he has also successfully completed several military courses, including the Airborne, Ranger, and Jumpmaster Courses, and, in 1979, the International Ranger Course (Lancero).

## Hard and Soft Trains



LIEUTENANT JOHN F. ANTAL

Because of the increased range and killing power of modern weapons, on the battlefield of the future, there will be no safe rear areas. Threat doctrine emphasizes the rapid breakthrough of defenses to seize objectives deep behind the front lines. It is not reassuring, therefore, that almost 90 percent of the combat service support elements in a tank or mechanized infantry task force are soft-skinned, wheeled vehicles.

According to the Army's present doctrine on the composition of the battalion task force trains elements, support should be maintained as far forward as possible, and maintenance should be performed at the lowest echelon that is capable of doing the job. It is to support these goals that the combat service support elements have so many soft-skinned, wheeled vehicles.

These assets are normally deployed according to the guidelines established in FM 71-2, The Tank and Mechanized Infantry Battalion Task Force. In that manual, two methods of deploying TF trains elements are described: Single location (unit trains) and dual-location (combat trains and field trains). The exact composition of the trains is left to the discretion of the TF commander. But the question that must be asked is: Will our present combat service support concept work with the equipment and personnel that are assigned to accomplish the support mission?

In a task force using dual trains in the active defense, for example, it is doubtful that the combat and field trains would be able to weather a Threat attack and remain in place through heavy artillery and air strikes. Even if they did survive, re-

covery vehicles might not be able to move forward to pull a disabled tank or APC all the way to the rear area without being overrun themselves. And mechanics in their 2½-ton maintenance trucks might not have the time they needed to repair damaged equipment. In addition, refueling and resupply might be needed for vehicles that a little earlier had had a complete basic load of fuel and ammunition. In the worst cases, the combat service support vehicles might not have time to do anything but withdraw and clog the roads with the bullet-riddled remains of destroyed trucks and wrecked Gamma Goats.

An alternative to the present concept of deploying soft-skinned vehicles forward of the TF field trains area is to use a combination of hard and soft trains. The concept is sim-



ple, and it does conform to the tenets of FM 71-2. Only armored, tracked vehicles would be deployed forward of the field trains area. They would make up the "hard trains area." All of the non-armored combat service support vehicles would remain in the field trains — the "soft trains area."

The trains areas would be broken down as follows:

- **Company Team Trains** — One M88A1 recovery vehicle and one M113A1 medical evacuation vehicle for recovery and medical evacuation missions would be located as close to the company team positions as possible.

- **Task Force Combat Trains** — Two M88A1s (battalion maintenance), one M578A1 light recovery vehicle, and one M577A1 medical evacuation vehicle for recovery and medical evacuation to the field trains would be located three to five kilometers behind the initial company positions.

- **Task Force Field Trains** — All organic and attached soft-skinned, wheeled vehicles to be used to repair,

rearm, and resupply and to treat and evacuate the wounded would be located 10 to 15 kilometers behind the combat trains.

Since the company trains and the combat trains would contain only armored, tracked vehicles, they could be deployed closer to the initial battle positions thus allowing more maneuverability and less vulnerability. Recovery and medical evacuation time would also be reduced.

In all military operations, time is a critical factor, and it can take several hours to fix a disabled tank or APC. The field trains offer the only secure

location where that time is available.

The hard and soft trains concept offers the task force commander a way to increase the effectiveness and the survivability of his combat service support assets. In high-intensity, extremely mobile situations, it offers the best mixture of survivability and flexibility; and in static situations, additional assets can be moved forward as they are needed.

Although the concept of hard and soft trains is really nothing new, it does reemphasize an idea that is just common sense and good tactics.



**LIEUTENANT JOHN F. ANTAL**, commander of Company C, 3d Battalion, 32d Armor in Germany, is an Armor officer who graduated from the United States Military Academy in 1977. He has graduated from the Armor Officer Basic Course, and has completed the airborne and Ranger courses at Fort Benning. He has served previously as a tank platoon leader, a scout platoon leader, and a battalion motor officer.

# Stay-Behind Observer



WILLIAM J. BROWN

Think of yourself in the role of a highly trained forward observer. You have been deliberately left behind in a forward area by your commander. Your wide variety of skills enables you to act as a pathfinder or as a forward area controller. But your primary mission is to report enemy activity in your area and to direct fires on those enemy forces when you

are instructed to do so. Unusual? Perhaps. But I believe the idea of stay-behind observers is one we should look into.

Although the concept of deliberately leaving a highly trained observer behind in a forward area seems overly risky to many, I believe it is an acceptable military risk in the infantry tradition, for a stay-behind ob-

server can offer a commander the following advantages:

- His timely intelligence reports could reduce the possibility of being taken by surprise by an enemy force.

- He could call in artillery ambushes and direct harassing missions to slow an enemy force, or he could direct interdiction missions against enemy supply columns, command

posts, and communication centers.

- He could serve as a forward air controller.

- He could serve as a pathfinder to guide in antiarmor helicopters, air cavalry tank-killer teams, or combat patrols.

- He could organize any guerrilla forces in his area and direct their operations against enemy units or installations.

In Western Europe, where a definite border now exists, we have ample opportunity to integrate stay-behind observers into our overall defensive structure. They, in turn, would complement our existing hedgehog defensive system in which we plan to set out numerous small antiarmor teams to conduct ambushes and delaying actions.

Single observers, or two- or three-man observer teams, equipped with the proper vehicles and com-

munication equipment, could be placed all along the border. They could have primary and alternate positions, and well-defined escape routes. Small caches of fuel and supplies could be set up in secret locations. Properly organized and tied in with each other and with appropriate tactical operation centers, they

would be of great value to those units that are charged with the defense of the forward areas.

We know that we will need all the firepower we can get in any future European war. Stay-behind observers could give us a way of making the most effective use of that firepower.



**WILLIAM J. BROWN** has been previously published in *INFANTRY Magazine*. He is a former Infantry noncommissioned officer who had a great deal of experience in rifle, antitank, and mortar platoons. He has served in Asia, the West Indies, and Europe. He is presently working towards a master's degree at Sul Ross State University in Texas.

# Technical Intelligence



MAJOR WILLIAM L. HOWARD

On 7 December 1941 elements of the Imperial Japanese Navy bombed the United States naval base at Pearl Harbor, and the U.S. was thrust violently into World War II.

As a nation, the United States was woefully unprepared for war. Its armed forces were undermanned and poorly equipped. In fact, much of the Army's equipment, when compared with that of the other countries already in the war, was obsolete.

Although the country was taken by surprise by its sudden entry into war, the armed forces quickly expanded their operations, while U.S. industry

geared up for what would become a massive wartime production effort.

One of the Army's most glaring weaknesses in 1941 involved its ability to collect technical intelligence. While the basic role of the fighting man had not changed over the centuries, the weapons he used had changed drastically, often with dramatic effect. A number of people in the Army's ranks knew that further technological innovations in weaponry could have equally dramatic effects on the outcome of the combat operations in which the Army was or soon would be engaged. They con-

sidered it imperative for the Army to stay abreast of the current weapon developments of our allies as well as those of the enemy powers.

During World War II, the requirements for information on foreign technology as it was applied to warfare were generated at the highest levels. Information was obtained from a variety of sources, including the Office of Strategic Services (OSS), and the British intelligence services. Once the information had been collected, studies and reports were prepared and sent to high level decisionmakers, research and devel-



opment agencies, and eventually to the troops in the field. The most common manual was FM 30-40, Recognition.

The detailed analysis of captured enemy materiel was done by the Foreign Materiel Branch at Aberdeen Proving Ground, home of the Ordnance Corps. Here, the Ordnance Corps and other technical services established Enemy Equipment Identification (EEI) units that traveled to the combat theaters to view and study captured weapons and equipment. They worked closely with the newly formed Explosive Ordnance Disposal (EOD) teams and, in areas where there were large scale naval operations, with the Navy's Mobile Explosive Investigation units. In many cases, EEI units conducted training programs on the use of enemy equipment for the soldiers in the field.

When the war ended in 1945, these teams were re-designated Technical Intelligence (TI) detachments and were assigned to the various technical services. Ordnance TI teams, for example, conducted a detailed exploitation of the arms industries of Germany and Japan.

In 1950, when the Korean conflict broke out, TI operations were conducted to support both the high level planners and the ground troops. For the most part, the North Korean Army was equipped with Soviet-made or Soviet-designed weapons

and equipment, and this gave the TI personnel their first opportunity to study Soviet equipment. Much of it was returned to the United States, but some was left in Korea, where Ordnance TI detachments used it to conduct foreign weapon demonstrations for infantry units throughout the Republic of Korea.

During the later 1950s, many of the TI detachments were returned to the U.S. and were either closed out or assigned to various Government arsenals where new weapons were being developed. The experience they had gained on the battlefield proved invaluable in designing new weapons.

During the U.S. involvement in the Southeast Asian conflict, TI operations were again established. A Combined Materiel Exploitation Center (CMEC) was set up to support the combat troops, the headquarters in Saigon, and the various agencies in the United States. TI teams operated in all areas in Vietnam and evacuated captured foreign materiel to the CMEC. As new items of equipment were reported in Vietnam, this information was also disseminated to units in the field. Various handbooks and reports were prepared and given to the combat units to help them identify the captured materiel and determine its capabilities. The TI teams set up museums of captured equipment to use in briefing incoming personnel on the foreign weapons and equip-

ment they might encounter. The items of captured equipment that were returned to the United States were subjected to more detailed evaluations, and these evaluations were used to design countermeasures.

In recent years, various organizations have been keeping track of the development of arms and equipment, and numerous books have been written and journals published on the subject. In the U.S., information on foreign weapons and equipment is collected by a wide variety of agencies. Through the efforts of the Foreign Science and Technology Center, which was organized in 1962, this information is directed to the foreign intelligence offices at the various Government arsenals where equipment designers work to develop countermeasures. Information is also supplied to TRADOC where new doctrine is developed, and to FORSCOM, whose troops learn about foreign equipment, how to defeat it, and how to make use of it in future conflicts.

The Army has also started its opposing force program and has revised FM 30-40, which is now entitled Handbook on Soviet Forces. A Red Thrust Detachment has been established at Fort Hood, Texas, to train combat arms units in the tactics that Soviet-equipped and -trained units might employ, while the TI unit at Aberdeen has been given the mission of preparing foreign equipment for use by soldiers who are assigned to act as an opposing force.

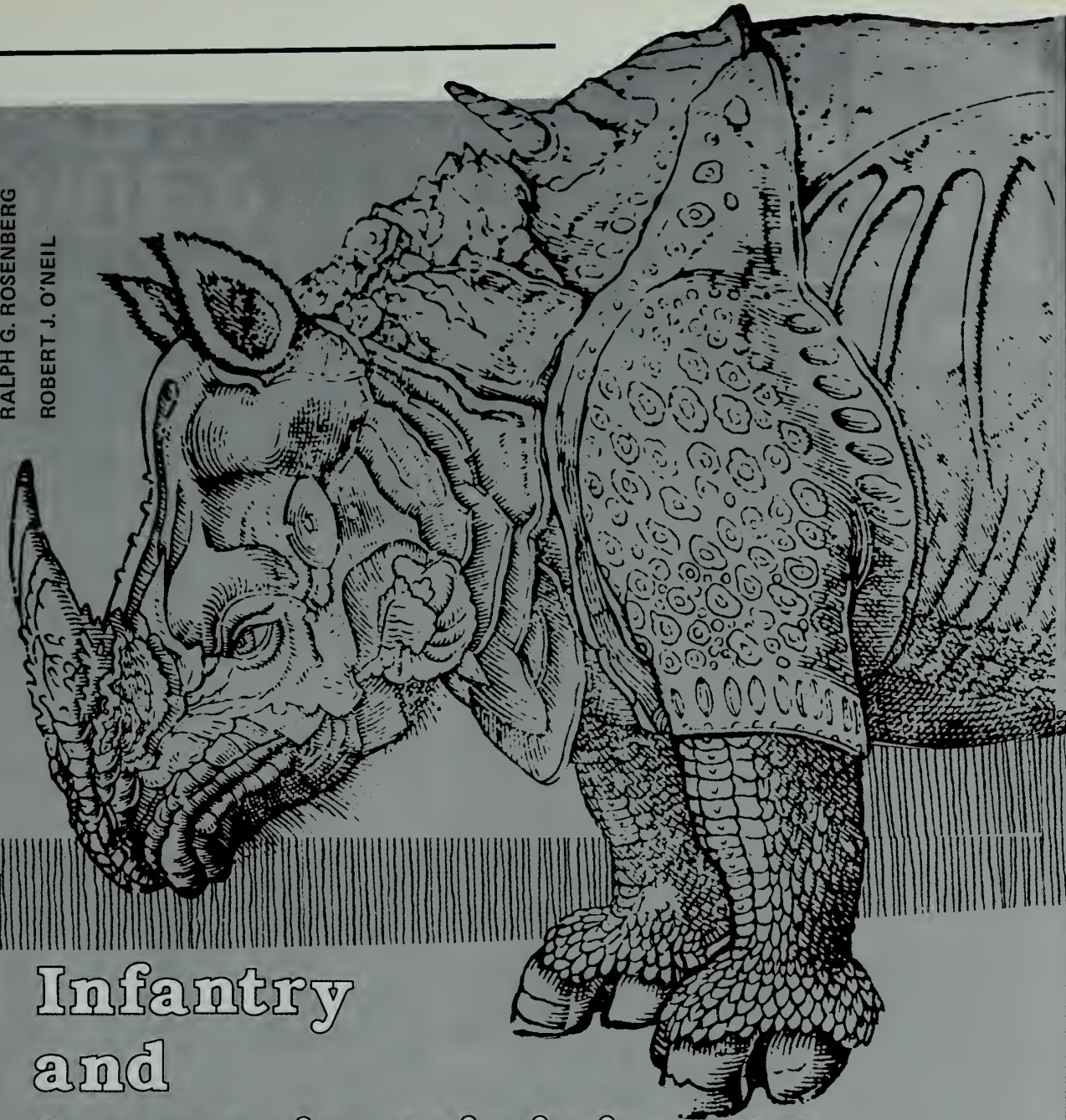
Through the efforts of various organizations, both civilian and government, today's soldier is much better informed about foreign equipment than his predecessor of 10 or 20 years ago. If this system is to function properly, the front-line soldier must cooperate with it and support it. The old maxim, "Knowledge is Power," is never more apparent than in combat, and part of this knowledge comes from Technical Intelligence Operations.



**MAJOR WILLIAM L. HOWARD**, U.S. Army Reserve, recently joined the staff of the Battelle Memorial Institute in Columbus, Ohio, following a six-year tour of active duty with the 100th Maneuver Training Command. He is a 1964 graduate of the ROTC program at The Citadel and served on active duty in Vietnam, France, and the United States from 1964 to 1968. He is a graduate of the Armor Officer Advanced course and the Command and General Staff College course.



LIEUTENANT COLONEL  
RALPH G. ROSENBERG  
ROBERT J. O'NEIL



# Infantry and Armor in Division 86



**AUTHORS' NOTE:** A portion of this article appeared in "Combat Services Support for Division 86," by Captains Bill Bledsoe and John R. Drebus, *ARMOR*, January-February 1981, pages 52-55, and is used with permission.

The Division 86 force design study conducted by the Training and Doctrine Command (TRADOC) has been a massive undertaking. Since the fall of 1978, various task forces have been developing organizations and doctrinal material that can assimilate and better employ the new systems that will enter the Army during the 1980s. For example, the Infantry, Armor, and Field Artillery Schools, with the Combined Arms Center, made up the Target Servicing Task Force.

The bulk of the work on the Division 86 heavy division has now been completed and the end result is a series of detailed operational and organizational concepts that describe what each organization will do on the battlefield and how it will be organized to do it.

The plan for the Division 86 heavy division (Figure 1)

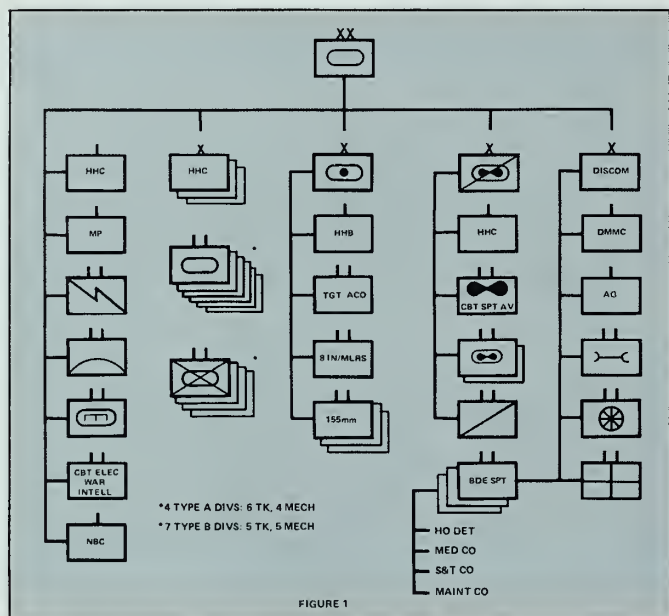


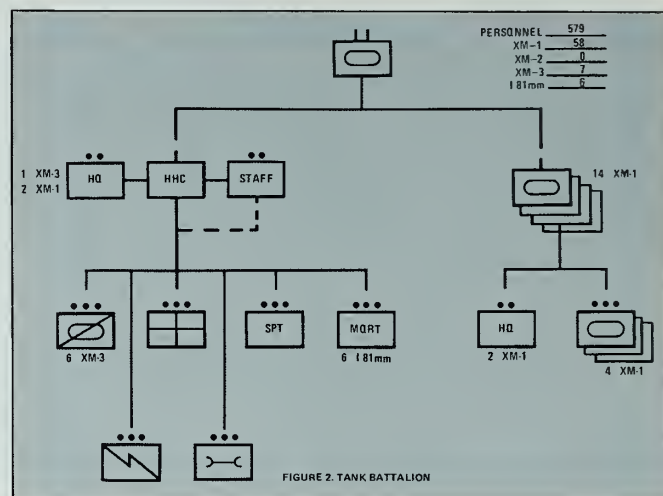
FIGURE 1

reflects the flexible design philosophy that was developed for the Reorganization Objective Army Division (ROAD) in the early 1960s. The division-base concept, for instance, will be retained, and the brigade will be continued as a tactical headquarters to control varying numbers and kinds of combat units.

But the tank and mechanized infantry battalions in the heavy division (Figures 2 and 3) will reflect a common design and operational concept. The four line companies in each will be able to conduct wider and deeper actions, attack on two axes, or defend on two avenues of approach. The four-tank or four-IFV platoons are designed to be employed as entities. The line companies will be smaller, but only because their combat service support elements will be moved to the battalion.

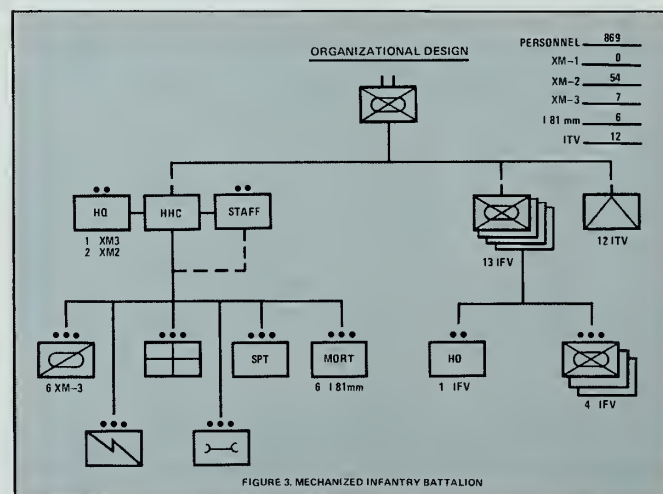
The maneuver units were designed as pure battalions

because it was believed that they would usually be cross-attached to form combined arms task forces. This, coupled with the complexity and the logistical demands of the Army's new equipment, required that compatible organizations be developed. A common base, or similar skeletal structure, was established by the Armor and



Infantry Centers, and the similarity is evident when the tank and mechanized infantry battalions are compared. In fact, the antiarmor company in the mechanized infantry battalions will be the only organization that the tank battalion does not share.

Thus, combined arms, support, and services will be



integrated at the battalion level where there will be a more experienced commander, assisted by a full staff of assistants. The companies will be employed either pure or as company teams on the basis of the analysis of the mission, enemy, terrain, and available troops.

One of the most significant changes in the maneuver battalions will be the operational and organizational concept for support. The combat support company will be eliminated. The ground surveillance radars will be placed in the artillery's target acquisition battalion; the armored vehicle launched bridges that are now organic to the tank

battalions will be given to the engineer battalion; and the Stinger (now the Redeye) air defense section will be moved to the air defense artillery battalion.

The centralization of these combat support elements was considered necessary because of the increased requirements for better technical training and maintenance. Only the scout and mortar platoons will remain from the present combat support company, and these will be absorbed into the battalion headquarters and headquarters company (HHC).

The battalion HHC will be rather large. For this reason, the commander of that company will be a major, and he will have a captain as an executive officer. But as shown in Figures 2 and 3, virtually all of the company's elements will be under the operational control of the various battalion staff officers, so the company's size should not pose a serious control problem.

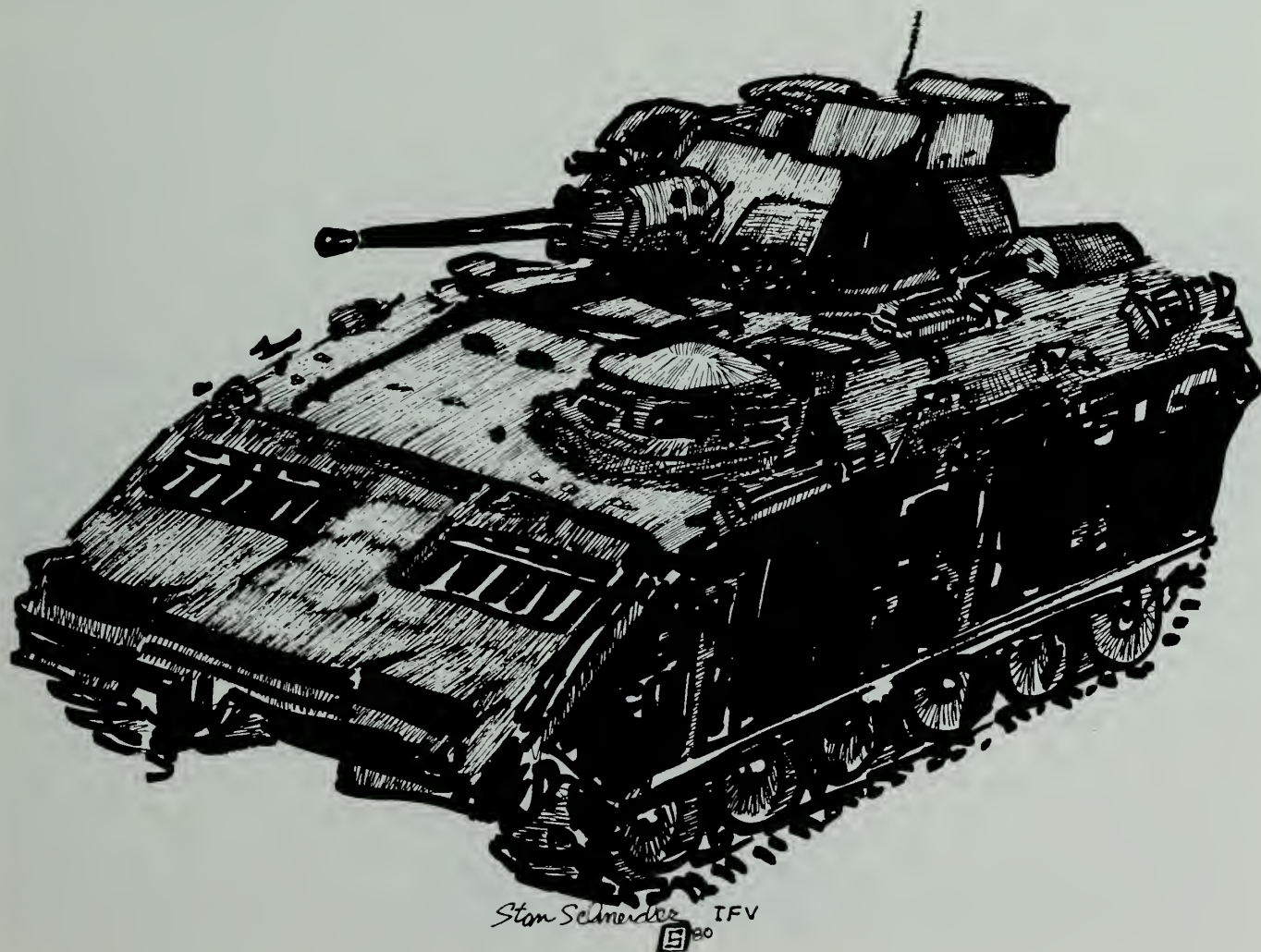
The HHCs of the mechanized infantry and tank battalions will contain identical scout and mortar platoons. The scout platoon, whose organization is derived from the Cavalry Scout Ad Hoc Committee and Battalion Scout studies conducted by the Armor Center, will contain six M3 cavalry fighting vehicles (CFV), each accommodating five men. (A seventh CFV will be added to

battalion headquarters for the tactical air control party to use.)

Under the plan, the mortar platoon will have a total of six improved 81mm mortars in two sections of three mortars each, with each section having its own fire direction center. Although the plan also calls for mortars to be eliminated from the mechanized rifle companies, there is still some discussion on this subject. In fact, the Combined Arms Center has begun a one-year study on mortars, and its results could change the mortar structure in the Division 86 heavy division.


The remaining elements of the tank and mechanized infantry HHC will be quite similar, the only differences being those caused by the variations in the weapon systems and in the number of supported personnel.

The battalion maintenance platoon will also represent a departure from the current maintenance structure. It was believed that the increased tactical demands that were being placed on the company commanders — the peacetime maintenance requirements they faced, the increasingly complex weapon systems for which they were becoming responsible, and their limited resources — called for a centralized maintenance element at the battalion level. The Armor Center initially proposed a maintenance company with a limited direct support capabil-



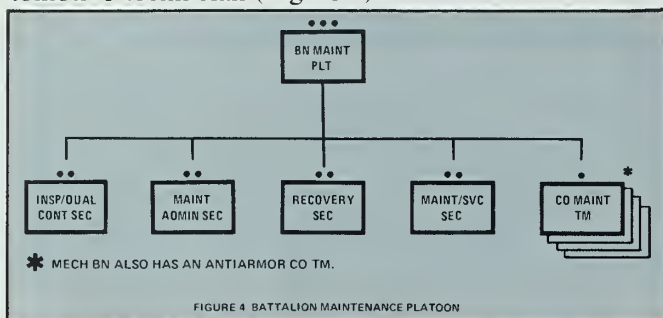




Don Schneider  YAH

ity. This was rejected because of the additional personnel costs, the uncertainties associated with developing a totally new company for the maneuver battalions, and the span of control problems that would have been created, especially in the mechanized infantry battalion.

Eventually, and only after a good deal of study and discussion, a centralized maintenance platoon was adopted, which will be placed under the control of the battalion motor officer, who will be assisted by the automotive technician (Figure 4).



Each maneuver company, and the antiarmor company in the mechanized infantry battalion, will receive maintenance support from a forward support team, which will be able to offer assistance in automotive, turret, and communications-electronics maintenance and in recovery. Its mechanics will be fully trained on either the tank or the infantry fighting vehicle. The team itself will have an M113 armored personnel carrier, a two and one-half ton truck with trailer, and one M88A1 recovery vehicle.

The inspection and quality control section will be given the responsibility for pre- and post-operations instructions during garrison operations and for the diagnosis and battle damage assessment with the appropriate maintenance teams in the forward area during tactical operations.

Although repair parts and maintenance records will be centralized within the platoon's administrative section, unit integrity of repair parts and records will be maintained as required for cross-attachment.

The recovery support section will provide welding, metalworking, and backup recovery support to the forward maintenance support teams; the maintenance services section will provide maintenance support to the rear elements of the battalion, will maintain the battalion's power generation equipment, and will also give backup support to the forward maintenance teams.

The battalion support platoon will be considerably enlarged, a move long overdue. The transportation section for the tank battalion will have ten-ton ammunition trucks and 2,500-gallon fuel trucks. The mechanized infantry battalion will retain both a five-ton and a ten-ton mix of vehicles to accommodate the bulk requirements of its TOW and Dragon missiles. The new heavy, expanded mobility, tactical trucks (HEMTT) that will be coming into the Army's inventory will have greater cargo capacities than the current Goer vehicles and will provide a better combination of highway and cross-country mobility. This considerable increase in organic transportation is based on carefully calculated company consumption and expenditure factors predicted for 1986 European combat scenarios.

The mess section will remain essentially the same.

The medical platoon's combat capabilities will be improved because the number of armored evacuation vehicles will be increased from four to six. In addition, the platoon will be given two M577 aid station vehicles to give it a split, or leap frog, capability. The battalion surgeon will be brought back and he will now join with the physician's assistant to offer the battalion more and better medical support.

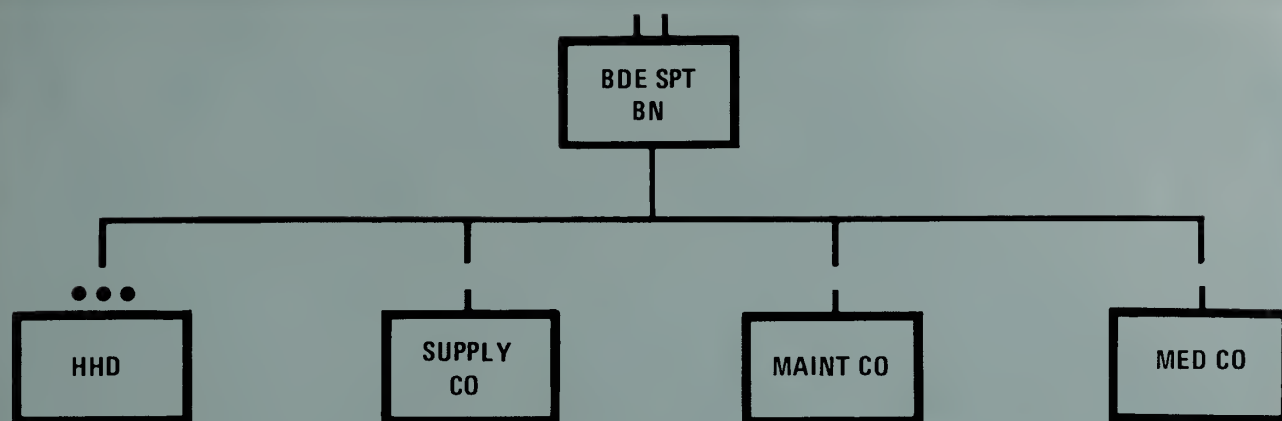


FIGURE 5. BRIGADE SUPPORT BATTALION

Communications throughout the battalion will be based on the single channel ground and airborne radio system (SINCGARS) series radios, and the key staff sections will have tactical facsimile equipment. The communications platoon will be given motorcycle couriers as well as enough radios to operate a jump TOC.

To take care of the logistical needs of the companies when they are cross-attached, the battalion has been structured to insure that the companies are provided equitable logistical support.

The maneuver battalions themselves will receive their logistical support from the brigade support battalion, which will usually be located in a brigade support area (Figure 5). The support battalion's organization will be the same as the current ad hoc forward area support team (FAST). Under the command of the DISCOM commander, a support battalion will operate in direct support of each brigade. The battalion will provide the services now being provided by the FAST, but will have the means at its disposal for better command and control and greater responsiveness.

An ammunition transfer point (ATP) will be established in each brigade area to supply high tonnage, high expenditure munitions; each will be able to move 500 short tons per day. This should provide some relief for the maneuver battalions, which now must obtain the bulk of their ammunition from the corps ammunition supply point (ASP) well to the rear.

The major changes that will come about as a result of the Division 86 study and its plan for the heavy division

can be summarized as follows: The mechanized infantry and tank battalions will have more combat power than our present ones; the four maneuver companies in each battalion will give it the capability to attack on two axes or to defend on two avenues of approach. The responsibilities of the battalion commander will increase in terms of integrating the combined arms, support, and services. And because combat service support will be improved and consolidated at battalion level, the line company commanders will be able to concentrate on using their weapon systems.

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MAJOR GENERAL HOWARD F. STONE



WHAT NOW, LIEUTENANT?

*It is just after midnight. You and your fifteen-man patrol are in a position that overlooks an open valley. The ground slopes gently away from you. On the valley floor, a trail is clearly visible in the moonlight.*

*Your company is in defensive positions some 800 meters to your rear. Your mission is two-fold: to give the company as much advance warning as possible of an enemy movement in your area, and to disrupt any enemy advance toward the company's positions. You have trained with your soldiers for many months and are confident in their abilities. But your unit has been in the combat zone for less than a week and that knowledge weighs heavily on you.*

*You mentally review your company commander's instructions and – for the hundredth time – go over your own preparations. The two machinegun teams from company headquarters are in good firing positions; their gun crews are carefully scanning the moving patches of shadow and light, continually revising their range estimates, all the while remembering the few obstacles that might block portions of their fields of fire. The company mortars are standing by to provide instant fire support, waiting for you to call over the company's radio net.*

*You glance at your radio operator who is crouched beside you, and remember that the radio he carries is your only link with the company. It is as vital to the company as it is to you, for unless it works properly, the entire company's security can be seriously threatened.*

*In the valley, the shadows have hardened and have turned into enemy infantrymen moving cautiously along the trail. You key the radio's handset and say: "Four zero, this is two niner. Enemy troops vicinity checkpoint Bravo. Over."*

*No response! You repeat the call. Again, no response.*

*More enemy soldiers make their appearance, moving on either side of the trail. Their formation seems to overlap your front. You now estimate that an entire enemy battalion is moving toward your patrol's positions.*

*Again you talk into the radio's handset, but again the radio remains silent.*

*The enemy soldiers continue to draw closer, completely unaware of your patrol's presence. The enemy's point men are now within twenty meters.*

*What now, Lieutenant?*

Lieutenants assigned to Fort Lewis, Washington, are being placed in situations like the one described and are being asked that tough question. In scenarios based on documented combat extracts from S.L.A. Marshall's writings and from Erwin Rommel's *Infantry Attacks*, small groups of lieutenants are given an opportunity to test their tactical wits against the "enemy." In this environment, the adrenalin flows freely, the pros and cons of the various decisions are discussed, and tactical learning improves tremendously. Most important, each young officer gains confidence in his decision-making ability as his exposure to actual battlefield situations strips away

much of the mystery that seems to surround the study of tactics. He is also impressed with a few basic facts that underlie all sound tactics at his level:

- Good decisions are generally those that are straightforward and logical. They are seldom obtuse or complex.

- Timeliness is the key to success in battle. Excessive delay is usually fatal.

- There is no perfect tactical solution.

- Aggressive execution is paramount. Even a poor plan can win the day if it is executed vigorously.

I conceived the idea of "What Now, Lieutenant?" about a year ago during a discussion with a former Special Forces sergeant for whom I hold a special regard. The seed was planted in my mind as I discussed with him my conviction that maneuver commanders at every level need more exposure to simulated battle experiences if they are to be prepared for combat. This is becoming increasingly true as we enter an era of diminishing ammunition allowances, fewer training areas, and conflicting demands on our time.

The technique is by no means a new one. It is simply a field adaptation of the old Harvard Business School "case study" technique that was employed some years ago in leadership instruction at Fort Benning. For added realism and interest, we use tactical situations that are extracted from real battles. Thus, the lieutenants can compare their solutions with those that were actually used. Although weapon ranges and capabilities have changed over the years, the techniques for using the proper small unit tactics have not.

## SIMPLE

The techniques are simple, inexpensive, and time-tested. We use terrain boards and scale models found in our battle simulation center (BSC), and an experienced discussion leader chairs each group, monitors the action, and stimulates the group's thought processes. After the group is given the detailed initial situation, a period of mental wargaming takes place during which free and uninhibited tactical thought is encouraged. When all of the questions concerning the situation have been answered and clarified, the individual members of the group assume the leadership roles called for in the scenario.

Once a decision has been made and its merits discussed, a new element is introduced. Computer terminals that link our BSC to the computer-assisted map maneuver system (CAMMS) give the discussion group a chance to get the CAMMS computer's analysis of the results of the patrol leader's decision in terms of casualties inflicted and ground gained or lost.

As the CAMMS computer printout is being generated, the discussion leader tells the group what the leader in the historical situation actually did and describes the results of the engagement. Frequently, the group finds that the real-world results differed from both the



CAMMS results and their own decisions. Enthusiastic discussions are normal at this point; they reinforce the idea that while there may be no school solutions in combat, the proper application of proven concepts can produce success.

“What Now, Lieutenant?” is a flexible tool, and we keep it responsive to the needs of our unit commanders by allowing them to reschedule and modify it as they desire. A small cadre at the battle simulation center, assisted by discussion leaders from the unit that is being trained, helps our commanders plan and conduct the exercise. This not only provides good training with little preparation time, it also gives our commanders another opportunity to train their junior leaders inexpensively in a flexible environment.

The initial results are promising. The 9th Infantry Division’s lieutenants are enthusiastic over “What Now, Lieutenant?” Typically, discussions are revived and continued in living rooms, BOQs, or the Officer’s Club.

(I will happily concede that much of the best learning probably occurs in just such informal settings.) The whole idea is to get tactics and terrain into our young officers’ vocabularies and onto their lists of topics of interest. In fact, we will be glad to settle for a third place in topics — right behind pro football and automobiles. Interestingly, the post librarian reports that business is brisk these days at the checkout counter in the military history section, and that is good news.

## REAL LIFE

Well, lieutenant, what did you do against that enemy battalion in the situation described in the opening paragraphs?

During the Korean War, the real life lieutenant was a young Ethiopian who had been in Korea for only three days. His patrol did come in contact with an entire Chinese battalion on Pork Chop Hill. His radio did fail. The patrol held its fire until the enemy came within 15 meters, and it completely surprised the Chinese and provided advance warning for its company. In fact, the patrol’s small arms fire devastated the lead elements of the Chinese battalion.

The lieutenant continued to try to make radio contact with his company until, fortunately, his call was finally acknowledged by a supporting artillery unit. For two hours, the patrol gallantly fought on, continuing to call in artillery. The patrol eventually used up all of its ammunition, but did not move from its position until it carried out an order to search the battlefield — a battlefield strewn with the bodies of a defeated enemy.

Today at Fort Lewis, through old techniques updated by modern technology and tempered by experience, we may be training some of the lieutenants who will be the “Great Captains” of tomorrow. Nothing would please us more. For if S.L.A. Marshall was correct in saying that the identifiable qualities of the best generals are the same qualities found in the best lieutenants, then, who knows?



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# QUALITY TRAINING

During the spring and summer of 1980, I was a member of the team of writers that produced the coordinating draft of Field Manual 25-2, How to Manage Training.

As part of our research effort, we made a series of visits to nearly every division in the Army. We not only observed training, we also interviewed about 300 trainers and training managers at all levels.

We found that when we asked those people to tell us what they meant by first class training, most of them had trouble putting their ideas into words. We concluded, therefore, that their inability to describe what they wanted training to be was one of the main reasons why we saw so many examples of poorly executed training.

We did find, though, after we had sifted through the numerous comments of those trainers and training managers that we could arrive at a good consensus of what they thought quality training ought to be. In brief, the people we interviewed seemed to agree generally that quality training has eight main features. These are listed below along with some of the comments of those trainers.

**The training is performance oriented.** Quality training emphasizes performance, is paced to the soldier's needs, and always insists on preparation, presentation, practice, and performance.

Trainers should be more concerned with what soldiers and units can do after training than about what the individual soldiers know. Because soldiers learn mostly by doing, they should be required to practice until they can reach the standards that have been established.

The soldiers to be trained, the trainers, and the training environment must be prepared for training. Thus, the soldiers should be pretested to find out their training needs, while the trainers prepare themselves as fully as

possible to teach the subjects they will present. The trainers must also coordinate, obtain, set up, and check out the facilities, materials, and equipment they will need for their training sessions.

When the soldiers arrive in the training areas, the trainers must tell the soldiers exactly what tasks they will be taught, and what standards they will be expected to reach. The soldiers should understand that they will be tested on their ability to perform to those standards, and should be cautioned about security and personal and equipment safety.

The soldiers should then apply what they learned from the trainers by actually performing the tasks. For most training, this is the most critical phase. The first practice activity should be closely controlled by the trainer and it should be geared to the soldiers' level of training at the time. As the training proceeds, the trainers can add speed, more equipment, and more challenging tasks until the soldiers can actually perform to the stated standards. Each session should be followed by a proper critique.

The clock should not decide when training should stop. Training should continue until the soldiers can perform to the established standards and achieve the desired levels of teamwork and proficiency. The training itself should be made progressively more difficult to challenge the soldiers' increased abilities.

After they have been trained in a particular skill, the soldiers should be required to demonstrate that they can actually do what they have been taught. The same training objective that was used during their training should be used to evaluate their progress.

**The training is tactically and technically correct.** Needless to say, the trainers must know their subjects, and they must be able to perform all of the tasks they ask their



soldiers to perform. Being proficient in these tasks enables them to prepare better training faster, coach and critique better, respond better to questions, and improve their general credibility as trainers and leaders.

**The training is realistic.** The ultimate in training realism is fighting an actual enemy force. In peacetime, though, units must accept a lesser form of realism — one that comes as close as possible to combat conditions without risking the lives of the soldiers.

Units that are expected to fight as part of a combined arms team must train as members of the team. Teamwork must be emphasized and the training geared to defeating a likely enemy force. And in its training periods, each unit should use all of the equipment it plans to go to war with.

Too much realism in the early stages of training may be wasted, though, because the soldiers may not have mastered their basic tasks. But once they have mastered those tasks, realism and complexity should be added to the unit's training program as quickly as the soldiers can profit from the addition.

**The training is conducted by leaders.** Because soldiers are expected to follow their leaders in combat, they should be trained by those same leaders. The leader of any group of soldiers should consider his training sessions an opportunity to impose his will on his unit and to shape it into the kind of team he will want to go to war with.

Too, a unit's leaders must always be involved in the unit's training. Even when they are not formally presenting training, they can critique, counsel, and set proper examples for their subordinates to emulate. This does not mean that some training should not be centralized at higher levels because of a shortage of experienced first-line trainers, or because of other factors; it does mean that a unit's leaders must be involved to the greatest possible extent in the training of their soldiers.

**The training addresses known weaknesses.** There is little point in conducting training on tasks that the soldiers already do well, or on those that are unrelated to a unit's wartime mission. Training should be conducted only when it will improve the desired performance. But training should not be considered the sole answer to a unit's poor performance. The problem may be one of communication, morale, equipment, supplies, or a combination of things that really have little to do with how proficient the soldiers are in their individual skills.

Well-motivated soldiers learn more quickly and remember longer, and realistic and challenging training motivates soldiers. Awards and other forms of recognition also can be used to motivate soldiers to learn and to do well. If the soldiers are interested and firmly committed to learning their skills, the trainers will not have to work as hard or as long to teach them. If the soldiers believe that the training is important to them personally, they will readily absorb new skills and will pay more attention to details, practice on their own, and critique themselves and each other. But if the soldiers believe

that their time is being wasted, little learning will take place.

**The training considers the basics first.** The soldiers must develop some proficiency in performing their individual tasks before they can be taught crew tasks. And a degree of skill in doing the crew tasks is needed before a unit can learn to operate in the field. Above all else, teamwork at all levels is needed if a unit is to benefit from any major training exercise.

Learning fundamental tasks first will allow the soldiers to master more complex tasks more easily and will help them to remember how to do them longer. Training should not move on to the more advanced skills until the soldiers have mastered the basics.

**The training helps the soldiers retain their skills.** The best method to use to help soldiers retain their skills is a program of regular exercises directed at refreshing their skills.

Training given in a proper sequence can also help soldiers retain their individual skills, for as soon as the soldiers have learned to do a certain task, they can learn closely related tasks with little additional training. Thus, once a soldier has learned to drive a particular type of truck, he should be able to learn to drive other types of trucks without too much difficulty.


Different kinds of practice sessions also help to fix individual skills more firmly in the minds of the soldiers. By learning to do his individual tasks under various conditions and circumstances, the soldier can often get a better idea of what it is he is supposed to be doing and how his particular tasks fit in with those of the other soldiers in the unit.

**The training uses resources effectively.** While it may be true that sometimes only the most expensive forms of training will get the results a commander wants, trainers and training managers should never use training resources simply because they are on hand. This means, for example, that all unused fuel and ammunition must be turned in. They should also try to find ways to conduct imaginative training at lower costs, which will probably mean that a unit will have more opportunities to train, using the resources it has saved.

## CONCLUSION

With these eight features to define what quality training is, Infantry commanders and their training staff officers should find it easier to establish and implement their own training programs.

**MAJOR DENNIS E. COATES**, a 1967 United States Military Academy graduate, recently completed an assignment with the U.S. Army Training Board and is now attending the Armed Forces Staff College. He holds a Ph.D. degree from Duke University and has served on the faculty of the USMA. He has also served as commander of an air defense artillery battery in Germany and as an advisor in Vietnam.

An illustration of two bears, one in the foreground and one in the background, both facing left. They are drawn in a sketchy, woodcut style. On the back of each bear is a white hammer and sickle symbol, the emblem of the Soviet Union. The bears appear to be roaring or growling.

# OPERATIONS IN THE ENEMY REAR

**PART 2** C. N. DONNELLY

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## LONG-RANGE RECONNAISSANCE OPERATIONS

The Front, Army and Divisional long-range reconnaissance units and those of the airborne formations will provide the men for most of the small-scale reconnaissance-diversionary groups deployed during the first hours and days of the offensive. The distinction between these teams and those diversionary groups mentioned above will mainly be in their subordination and targeting, the long-range reconnaissance units being more directly military than their colleagues.

The first role of these troops is indeed reconnaissance and the passing back of information so that other forces can do the hitting. They will, of course, undertake sabotage and diversionary missions, as long as this does not involve them in a pitched battle. At an early stage, the Soviet aim would be to disrupt or prevent troop deployment and later to identify deployment

locations. Once again, nuclear weapons take priority, closely followed by HQs, lines of communication, transport units, etc. Suitable sites for the landing of larger airborne assaults will be selected, to be used as soon as the Soviet air forces can establish mastery of the air along the chosen flight path.

Long-range reconnaissance and diversionary troops are usually deployed in small teams of men with mixed skills relevant to their particular task. They are equipped with camouflage smocks and a good range of

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personal equipment: folding spades, wire saws, sound moderators for personal weapons; survival kit, fishing hooks and line, etc. Teams usually carry RPG-7s and perhaps ATGWs, a wide range of mines and explosive devices, and passive night-vision devices. Signallers carry portable direction-finders to help them locate enemy signals transmissions, and radio equipment capable of intercepting low-level NATO radio traffic (battalion nets, etc.)

Taking care to avoid roads and habitation, the group will move off the drop zone (DZ) as quickly as possible, and make for an assembly point closer to their target. If they lack information, they might try and listen in to conversations of local civilians, or else plan to capture a prisoner for interrogation. Traffic controllers or isolated guards are favorite subjects.

Reconnaissance posts can be set up within sight of roads or railways and of course the teams will be supplied with information from higher command, as well as themselves passing on information.

On the basis of all available information, the platoon leader will plan his mission, perhaps deploying his three teams in coordination against one target, perhaps

deploying them separately. At no time will the reconnaissance troops attempt to engage in a fire fight, and if they are engaged they will run away rather than return fire. A typical ambush is arranged by capturing and impersonating a traffic controller and then directing the target vehicles into a convenient prepared trap, on to a mined bridge, etc. Communication is established with higher HQ by rapid transmission at set times, e.g., from 5 to 10 minutes past a given hour. Higher HQs listen for unscheduled broadcasts at a given time. Frequent wavelength changes are made to hamper interception.

A favorite method of obtaining information, which is employed by all behind-the-lines elements, is the capture and interrogation of a prisoner. Special "snatch" operations are mounted to seize likely prisoners by stealth from isolated positions, at night or in bad weather.

Resupply, with equipment and specialist personnel, is probable, and such teams could hope to survive at least in part to fulfill a reconnaissance and sabotage function for up to a month, although they would rarely stay active in one locality for more than two days.



The main threat to the viability of such groups is seen by the Soviets as being a hostile and alert civilian population, combined with helicopter observations and search posts and an active mobile search force — particularly of enemy paratroopers. Troops chosen for this type of task, while not so specialist as the first wave of diversionary troops, clearly have to be well trained and capable of showing genuine initiative. Such units must be quite useful as a repository for the type of soldier who otherwise might be a bit of a problem in a normal Soviet unit. Unlike normal units, where such a development would constitute a threat to authority, members of reconnaissance teams are encouraged to develop a high degree of comradeship and team (as opposed to political) loyalty. Even so, initiative allowed is not unlimited. The troops' targets are strictly controlled; in the last war, often only the officers and sergeant-majors on such teams were issued with maps — the men would often not know their exact location, or the location of anything except the next assembly point. If a soldier became a casualty and was left behind, lost or captured, security could be maintained by resorting to a pre-planned secondary assembly point.

Missions of a very similar nature would be carried out by elements of Warsaw Pact naval infantry forces. They would be landed either by fast patrol boat, from submarines, merchant ships or by parachute. On land, such forces try to infiltrate between enemy positions through dense woodland on foot, ski or light vehicle. In winter, troops are dropped with skis and snowshoes and the appropriate camouflage and survival equipment.

Insertion of such reconnaissance or sabotage teams by parachute can be done conventionally if air superiority is held; alternatively, if it is not, then from small, low-flying aircraft at night, or by high-altitude/low-opening free-fall techniques. The Soviets have demonstrated a high degree of competence in this latter skill in international competitions. The employment of East German troops in this role might present a serious recognition problem to non-German NATO forces.

## AIRBORNE RAIDS IN STRENGTH

When the Soviet Front commander has received enough information to enable him to assess the condition of the defense he faces, and when his air forces can claim at least local and temporary command of the air over the relevant sectors, he will consider deploying the main forces of his airborne units.

Although the Soviets have demonstrated their ability to drop an entire division simultaneously, such a large-scale deployment is improbable in a European war scenario because (a) the demands on air transport will be prodigious; (b) the force would be difficult to control; and (c) such a concentration of unarmored forces would present an ideal nuclear target. It is likely that no more than a regiment would be deployed simul-

taneously, and that a force of this size would be dropped on dispersed battalion DZs. A reinforced battalion seems by far the most likely basic grouping, and even this takes a prodigious amount of airlift capacity when deploying with its BMDs.

It seems likely that, as is often practiced on exercises, a reinforced airborne battalion in BMDs would seek to capture an airstrip, and further forces would be ferried in and air-launched from Aeroflot or military transports. On a coastal target, the airborne battalions might seize a beachhead or harbor from the land and further forces be landed by ship.

The prime functions of airborne forces dropped in strength into the enemy rear are normally either to carry out a "raid" to destroy an enemy objective; make an attempt to seize a key area of terrain and hold it for a given time or until the main forces arrive; or attack the enemy's defensive positions from the flank or rear to ease pressure on the main forces or to divert the attention of the defenders.

Although, as far as this writer is able to ascertain, each airborne division is at present equipped with only 95 BMDs, virtually every open-source article dealing with airborne battalion tactics assumes each of the division's three parachute-assault regiments to be fully BMD-equipped. It may be, therefore, that in time it is the intention of the Soviet General Staff to increase the complement of BMDs in airborne units. Alternatively it may be that non-BMD-equipped units or sub-units will be allotted different tasks, possibly where opposition is less formidable, or perhaps they are earmarked for fighting in forests or built-up areas, where such vehicles are less of an advantage. Certainly the airborne forces and naval infantry appear to do more training for fighting in built-up areas (perhaps port areas) than do other types of troops. They also have the *elan* and high morale essential to successful street fighting.

## RAIDS TO DESTROY AN OBJECTIVE IN THE ENEMY REAR

The vast spaces over which the Red army fought between 1941 and 1945, and the consequent inescapable low density of forces, meant that there were many opportunities to deploy really large formations (up to a corps in size) on raids in the enemy rear lasting for months at a time. This experience has undoubtedly endeared this concept to the Russians. Although space in Western Europe is not so vast, and time may be shorter, deployed forces are not huge and there will still be plenty of space in which a battalion group can operate in the enemy rear. On the flanks of NATO, in Norway and Turkey, there is far more space and the airborne forces based contiguous to those areas do indeed train for mountain and arctic warfare.

The key to the understanding of the present, highly significant, role of the Soviet airborne forces rests on an appreciation of the impact on the battlefield of two



weapon systems, the BMD and the Mi-24 *Hind* helicopter. Equipping an airborne battalion with 31 BMDs in addition to its support weapons gives unprecedented mobility and enormously increased firepower. The ability of airborne battalions in the enemy rear (provided they are not too far from the FEBA) to call down really close fire support from the *Hind* is tantamount to insuring the airborne forces have highly accurate heavy artillery support on call even if they are behind the enemy lines. The result presents a most formidable threat to major NATO rear area installations.

Destructive raids in battalion strength are mounted (a) to attack enemy nuclear delivery systems and major field HQs, or other important targets; and (b) to seize airfields, bridgeheads, defiles, passes and commanding ground, important villages controlling terrain and key industrial establishments, until the target in question can be exploited by the main forces advancing.

As a rule, when engaging in a raid, an airborne battalion is mounted in 31 BMDs and is allotted support in the form of engineers, ASU-85 assault artillery, anti-tank weaponry and perhaps even multi-barrelled rocket launchers (BM14). The battalion may be dropped or landed a considerable distance from its objective and may use its great mobility to motor the separating dis-

tance at high speed, thus achieving greater surprise than might otherwise be the case. The battalion commander can communicate directly with support helicopters which may be placed on call to him by the higher formation commander. A response (call on strike) time of about 30 minutes is a realistic average to be expected.

Moving from their assembly area to their target, or from one mission to another, when a considerable distance is involved, the battalion adopts the standard march formation with a reconnaissance group well out in front to identify routes and reconnoiter enemy positions; a battle reconnaissance patrol as strength on the main axis; a weak company (i.e., less the reconnaissance group element) as GPZ (forward march security patrol), with a platoon of the ASU-85 battery attached. The remainder of the battalion group, following as the main forces, puts out sections as flank security patrols. Thus configured, the battalion is not only capable of very rapid movement, but also well prepared both to fight a battle should any enemy forces be encountered on the move; or put in a rapid attack from the line of march on encountering any deployed enemy or on reaching its target.

The battalion moves off roads so as to avoid detection, and chooses routes which will best shield it from





battlefield radar. The reconnaissance group puts out route markers and where necessary traffic controllers to direct the main forces. Speed of movement can be as high as 40 kilometers per hour (25 kilometers at night, and 15 kilometers in hilly country). On approach to the enemy position to be attacked or captured, the GPZ will either join the main forces for a concerted attack from one direction or, more likely, deploy and put in an attack from the flank simultaneously with the frontal attack by the other two companies. Control will be exercised from a command and observation post.

Interesting examples of targets for such raids discussed recently in the Soviet military press, in addition to the usual glut of HQs and missile launchers, have been: defiles and passes in hilly country to block the movement of reinforcements and cut off withdrawal routes of NATO formations; bridgeheads, to await the arrival of a forward detachment; a village close to an airport, from which aircraft using the airfield could be engaged by antiaircraft fire.

Judging from press coverage, the airborne forces do much more training in night fighting than do motor-rifle and tank troops.

Although ambushes, for the purposes of concealment, are usually small-scale affairs (platoon), with the BMD company operations can be mounted after the model of tank ambushes in the 1941-1945 war. Such an ambush might be mounted to intercept an enemy force moving in to deal with the airborne threat. In the ideal BMD ambush, the vehicles would be concealed by folds in the ground as well as undergrowth, etc., some 1,500 meters from the road where the enemy is expected, making them invisible to the battlefield radar as well as to visual observation. Merely hiding in the edge of a wood covered in twigs will no longer conceal you from the enemy, Soviet paratroops are told.

The far side of the sector of road on which the ambush is to take place will be well mined, as will any convenient ditches and hides close to the road. A company will cover at least 1,000 meters of road, a platoon up to 500 meters. Each BMP will engage up to three enemy AFVs. On a warning from a concealed observer, the BMDs will come up to a firing position and first engage the moving enemy column with their ATGW at 1,500 to 1,800 meters, seeking to knock out the first and last vehicles. Then they will dash forward to within 500 meters of the column (taking only one to two minutes) and deploy their assault crews, engaging the enemy with their guns and with the assault crew's small arms and portable antitank weapons. Where possible, natural-looking obstacles will be placed on the road to narrow but not obviously block it, as this will increase the surprise of the ambush.

Airborne forces on a "raid" are chiefly vulnerable to NATO ATGW helicopter strike, despite the fact that they might have *Hind-D* on call in support. Even with SA-7 and ZU-23, a battalion on the move has only minimal antitank defense against a well handled, missile-armed helicopter group.

The chief value of such airborne forces is, of course, their surprise effect, considerably enhanced today by their increased firepower. The extreme maneuverability makes flank and rear attacks feasible, but in a direct attack on a well prepared and determined enemy, equipped with the right kind of weapons, an airborne battalion would have difficulty in succeeding unless it took the enemy completely by surprise.

The question which commanders of NATO rear-area installations must ask themselves is: are they sufficiently guarded, prepared and correctly equipped? The threat to Division, Corps and Army Group HQs, logistic dumps, major bridges, etc., may not only be small teams of saboteurs, but a battalion in BMDs with artillery and helicopter support. If the HQ is guarded by a company of soldiers with rifles and a couple of light antitank weapons and nothing more, then the result will be just what the Soviets intend that it should be.

### RAIDING ACTION BY COMBINED-ARMS TROOPS OF THE GROUND FORCES

As mentioned above, the experience of the 1941-1945 war, fought over vast spaces with considerable gaps between units on both sides, encouraged the Soviets to develop their concept of pushing troops behind the enemy lines in vehicles. Nowadays, although the spaces are smaller, irregular mobilization of NATO forces or differing tactics of mobile or static defense will probably lead to a defensive line which is not all continuous and which recreates on a smaller scale the relevant features of the last war.

Into these gaps between forces the Soviets will hurl mobile combined-arms groups as forward or flanking detachments or as raiding groups. The task of a flanking detachment is to bypass the enemy defense, penetrate into the rear, and deliver a blow to the defenders' flank or rear. The task of a raiding detachment is to penetrate deep into the enemy rear to destroy a specific target or series of targets of operational importance. The task of a forward detachment is to advance well ahead of the main forces, but by different routes; to come upon and capture a key objective, the seizure of which will contribute to the speedy advance of the main forces of the formation to which the detachment is subordinated. The distinct tasks do tend in some circumstances to run together. In all cases, the aim of the detachment will be to avoid action and indeed detection until it actually launches a (surprise) attack on the appointed target.

The details of targets and tactics of raids discussed above for airborne forces apply equally to ground-force detachments. However, the chief difference, apart from method of transport and possibly depth of operation, is that ground-force raiding detachments will be even stronger than their airborne counterparts. The Soviet term "detachment" (*otryad*) means a group specifically created for a given task, and therefore





composed of the most suitable equipment available. Composition will, therefore, vary widely. A forward detachment given the job of breaching a minefield and seizing a river bridgehead will have lots of sappers for mine-clearing and river-crossing, and probably frogmen. A forward detachment given the task of seizing ground dominating a gap in hill country may have none of the former, but lots of GMZ minelayers and earth-moving equipment, etc.

There is, however, a "standard" combined-arms grouping, based on a battalion, which presents a good average example, and of which most examples given in the Soviet military press seem to be variants. This is usually a motor-rifle battalion mounted in BMPs plus a tank company, a reconnaissance platoon with a chemical section, an antiaircraft platoon, an engineer platoon, a battery or even a battalion of self-propelled guns and a small logistical tail.

Such a force could not move as quickly as an airborne battalion in BMDs, and could perhaps maintain only 15 kilometers per hour overall, moving as it would off the roads where possible. It is, however, like the BMD units a sufficiently mobile group to move across terrain which the defender might consider an unlikely route of advance, especially if good going or good roads exist in the neighborhood.

The commander of this type of detachment will make a particular point of trying to estimate where and

by which routes the NATO defenders will expect him to advance, and he will take great care to avoid those routes, with the aim either of getting past unnoticed or putting in a surprise attack from the flank or rear.

The deployment of such forces is the spearhead of the main forces' attempt to break through into the rear, and the axis of main advance will probably be chosen to exploit the most successful of the many such probes that an attacking Army will throw out in front of it.

The detachments will, like the airborne forces, receive on-call support from armed helicopters to cover their activities.

## HELIBORNE ASSAULTS

The final, but by no means the least important, means of delivering an assault into the enemy rear which we will address in this article is the landing of an assault force of motor-rifle or airborne troops in the enemy rear by helicopter. Such an assault could have any of the aims attributable to airborne or land forces carrying out a raid to destroy a key installation or weapon; seizing a key area, defile, bridgehead, airfield or port; or launching an attack into the enemy rear so as to divert his attention from the main assault.

The advantage of heliborne assaults is that the troops are landed in good order, close together, and

can be controlled and deployed into action much more quickly than from a parachute drop. Consequently, they will be landed much closer to their objective than would a BMD battalion. They might not, however, possess the armored mobility of the BMD on a lavish scale. A further advantage is that ordinary motor-rifle troops can be used with only a minimal amount of training, and the assault can be launched at very short notice. If the aircraft are standing by, only a few hours need elapse between the identification of a target and the subsequent decision to launch an assault, and the landing of the assault right next to the objective.

Air supremacy along the flight path and in the landing zone (LZ) is absolutely essential if disaster is to be avoided, and antiaircraft weapons must be cleared by prior air strike by fixed-wing aircraft and helicopters. Fire support and suppression along the route will be provided by *Hind* and by coordinated artillery from the main forces, if range permits. Fire suppression of enemy near the LZ will be provided not only by preparatory bombardment and by accompanying *Hinds*, but can also be put down by the Mi-8 *Hip* helicopters which are likely to be the mainstay of the transporting force. Each aircraft carries up to six pods of 57mm rockets. Heavy weapons will be carried by Mi-6 *Hook* helicopters.

The "march formation" that a helicopter force adopts enroute to its LZ is based on the same principles as direct the deployment of ground-force battalions. The main force of the transport helicopters will deploy in front of it a forward group and possibly flank guards whose task is to identify, draw and if possible neutralize any antiaircraft fire enroute, lead the fire suppression of the LZ, interdict any enemy forces moving to counter the assault, and attempt to suppress any enemy batteries that can bring fire to bear on the attackers.

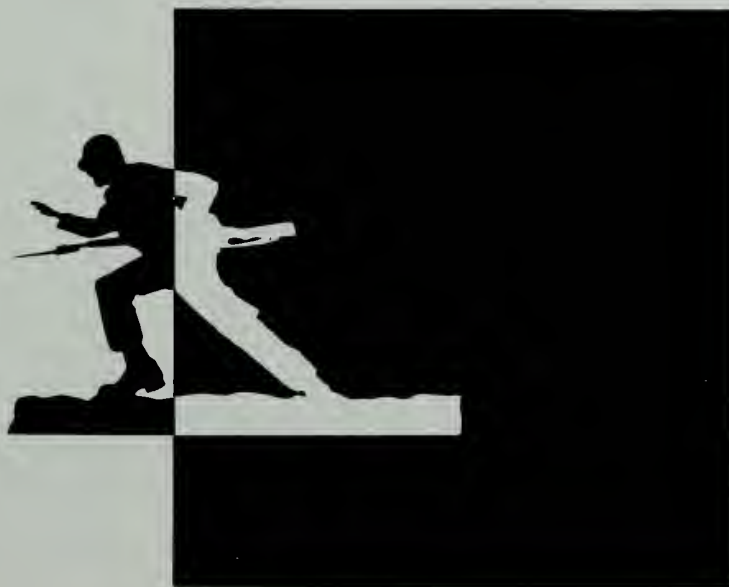
A great deal of publicity in the Western press has re-

cently been devoted to the Soviet diversionary groups which might be deployed against strategic NATO targets. Important though these are, however, they constitute only a small percentage of the total forces which the Soviet High Command will attempt to throw against NATO's rear. As far as a military commander in the field is concerned, the major threat to his HQ, supply lines and communications may not be sabotage squads but mechanized battalion groups with air and artillery support, requiring a very different type of defensive measure.

It is the sum of all these efforts, plus the coordinated air and missile strikes on rear-area targets, that is of the greatest significance, for it demonstrates the attention which the Soviets pay to planning to win the war quickly, by a paralysis of the military, economic and political systems of their opponent.

As a concept of war, the Soviet plans are neither unique nor original, except perhaps in their scale. Furthermore, the Soviets themselves recognize that there are enormous problems which will hinder the execution of these plans: lack of preparation time; low levels of initiative and competence on the part of junior officers; difficulties of maintaining command and control, and of coordinating actions. However, the troops involved at all levels are the elite of the Soviet armed forces, among the most carefully selected and best trained — in itself evidence of the importance the Russians attach to operations of this kind.

It is difficult to make a conclusive assessment of the probable effectiveness of these Soviet operations in the enemy rear. However, if, as the Russians hope, they succeed in disrupting political stability in NATO countries prior to the outbreak of war and catch NATO armies half-mobilized, undeployed and ill-prepared, then even diversionary and airborne troops with only a mediocre level of training will probably serve to achieve the desired results.





# TRAINING NOTES



## USMA Company Tactical Officer

CAPTAIN JOHN M. MITCHELL

Although most of their compatriots probably know little about what they are doing, those infantrymen who serve as company tactical officers with the Corps of Cadets at the United States Military Academy work in one of the most demanding jobs today's Army can offer. Not only are they responsible for the overall development of the cadets, they are also charged with maintaining good order and discipline, enhancing the quality of the cadets' lives, and enforcing the Academy's standards of appearance and conduct.

By law, the company tactical officers are designated commanders, although there is little similarity between their commands and the line companies in an infantry battalion, for example. Perhaps the most significant difference is that the tactical officers at the Military Academy have no real administrative section to assist them — they must depend solely on a cadet chain of command to do what a dedicated administrative element would do in a line company. While a few of the cadets may have

had some military experience, most of them learn their jobs by watching other cadets or by reading their job descriptions.

The tactical officers themselves — drawn from the ranks of the Active Army's combat and combat support branches — are volunteers who must be nominated by their branches and accepted by the officials at the Military Academy. They must have commanded a company and completed their branch advanced courses. Most have degrees in psychology, personnel management, counselling, or some related discipline.

The tactical officers usually stay at the Academy for three years, spending one year in a staff position within the Corps hierarchy and two years as a company tactical officer.

The cadet companies, usually 120 strong, are fully integrated. The male and female cadets — from all four cadet classes — live in the same barracks, segregated only by room assignments. They also have separate latrine facilities.

The cadet chain of command, in

which the command positions rotate every semester, can usually handle the everyday functions of the unit. But since the cadets spend most of their time going to class and participating in such required activities as intramural activities, academic tutoring, social activities, and drills and ceremonies, the company tactical officer must personally handle most of the actual administrative work. In his dealings with the cadets, he must strike a tenuous balance between being the concerned counselor and the stern disciplinarian.

In reality, one of the tactical officer's greatest problems is getting to know his cadets as well as he should. He must periodically submit formal evaluations on the performance, progress, and potential of each cadet in his company. He must be able to make fair and objective judgments.

To do his job properly, considering the cadets' numerous required activities, the tactical officer must use every means at his disposal to make informal contacts with his cadets. By moving through the barracks, visiting classes, presenting instruction (he

does some of this, too), observing intramural and intercollegiate athletic practices and contests, and attending social functions, the tactical officer can learn a great deal about the cadets assigned to his care.

He usually works at a fast pace because he must keep track of a group of achievement-oriented soldier-students. His reward, if there is one, comes from watching his cadets experiment, develop, learn, and mature.

A tactical officer's assignment is demanding, both professionally and personally, and it carries with it the challenge of developing the Army's future leaders.

Any infantry officers who are qualified would do well to actively seek

this assignment. It will not disappoint them.



**CAPTAIN JOHN M. MITCHELL** is executive officer to the commandant of the U.S. Military Academy where he formerly served as a company tactical officer. A 1972 graduate of Auburn University, he also holds a master's degree from Central Michigan University. He has served as a platoon leader with the 1st Infantry Division at Fort Riley and as a platoon leader, company commander, and assistant S3 with the 3d U.S. Infantry at Fort Myer.

## SILENT ENEMY

**CAPTAIN ROBERT J. KAINZ**

There are many enemies on the battlefield. But probably the most insidious one an infantry unit commander will be called on to face is one that he may never see, one that can reduce his unit's fighting strength by 98 percent in just a few hours. That enemy? A waterborne disease caused by the failure of the members of his unit to properly disinfect their drinking water.

This really should not be a problem because every one of our infantry unit commanders — at one time or another — has been taught the proper way to disinfect his unit's drinking water. Unfortunately, though, some of our commanders either have not learned their lessons or they have forgotten what they had been taught. I have worked on several such prob-

lem cases during combat in South Vietnam and in training exercises in Europe and the United States.

When water is to be used for drinking or cooking, regardless of its source, it must be disinfected and an adequate disinfecting residual maintained. This includes water from post distribution systems, commercial sources, combat water production units, or natural sources. When the water is to be taken from a natural source for drinking purposes an additional safeguard is required: source selection. The best natural source for drinking water is usually a river, followed by a stream, a creek, and a lake or pond.

The clearest possible water source should be selected and, if possible, a location should be picked where the

water source is at least six feet wide and one foot deep with a rapid flow of water. It is also a good idea to look for fish or other aquatic animal life living in or drinking from the source. The source should also be located at least one mile downstream from any town or city.

After the source has been picked and marked off, the unit must make certain that no contaminated material of any kind is dumped upstream from the selected site for a distance of at least 300 yards, and that all washing and latrine facilities are placed well downstream from the selected site.

When only a small quantity of water is needed or when a unit is on the move, it is better to disinfect the water in each soldier's canteen than to collect and disinfect a large amount



of water. To disinfect a canteen of water, only the steel-gray iodine tablets (FSN 6850-00-985-7166) should be used. Any variation in the tablet's color identifies it as a contaminated or ineffective one. The tablets should not be stuck together and they should definitely not be crumbly.

The canteen should first be filled with the cleanest, clearest water available. One iodine tablet should be placed in a filled one-quart canteen, two in a canteen that holds two quarts of water. If the water is cloudy rather than clear, the tablet dosage should be doubled.

With the cap of the canteen closed tightly, the canteen should be agitated for five to ten minutes. Then, the canteen should be inverted, its cap slightly loosened to let water seep over the threads of the cap and to overflow, and then turned right side

up and the cap tightened. After 20 more minutes pass, the water can be considered safe for drinking.

### ANOTHER METHOD

There is another way of disinfecting the water in a canteen. This is done by using calcium hypochlorite rather than iodine. In this method, a canteen is filled with the clearest, cleanest possible water, but about an inch of air space is left between the bottom of the neck and the top of the water. One ampule of calcium hypochlorite (FSN 6850-00-270-6225) should be added to a canteen cup half-filled with water, and this solution should be stirred with a relatively clean stick until the powder is completely dissolved. If a plastic canteen is being used, the canteen's cap

should be half-filled with the solution and this amount added to the water in the canteen. If an aluminum one-quart canteen is being used, three caps full of the solution should be added to the water in the canteen. Again, the cap should be loosened and the canteen inverted to allow the treated water to seep around the threads and neck of the canteen. The cap should then be tightened but a soldier should wait at least 30 minutes before drinking the water.

When a unit in the field has established a semi-permanent position and plans to set up mess facilities, it will need greater quantities of water. In this case, the recommended method is to use the hypochlorite ampules to disinfect the water in a lyster bag.

As the first step in this process, a canteen cup half-filled with water should be drawn from the bag. To



When a unit in the field has established a semi-permanent position and sets up mess facilities, it will need greater quantities of water.



Any water that is to be used for drinking water must be disinfected.

this, three hypochlorite ampules from a field water disinfection kit should be added and permitted to dissolve. This solution should then be poured into the water in the bag and stirred for 10 minutes with a reasonably bare, clean tree limb. After the solution has been well mixed with the water, the spigots of the lyster bag should be opened and water allowed to run through all of them for a short time.

When this has been done and the spigots closed, the water in the bag

should be tested by using the color cylinder that comes with the test kit. Water from the bag should be added up to the bottom edge of the colored band on the test cylinder that is marked "5." One orthotolidine tablet, also found in the test kit, should then be added to the water in the solution, after which the cylinder should be secured and the cylinder shaken until the tablet dissolves. (The tablet will dissolve better if it is either broken into small pieces or crushed before it is put in the cylinder.)

If the color of the water is equal to or darker than the color band marked "5," the water is considered safe. If not, one more hypochlorite ampule must be added to the water in the lyster bag and the process repeated until the test water color equals or surpasses the color band on the test cylinder. After the water meets that standard, it should be allowed to stand for 20 minutes before it is used.

Boiling can also be used to disinfect water. Although it is the most



primitive method, it is quite effective if done right. (The water should be brought to a vigorous boil and kept at the boil for at least 15 seconds. Under most circumstances, this should temporarily disinfect the water.) Water does lose some of its taste when it is boiled. This should be expected. But there are two disadvantages of this method that are more important than the taste — boiled water offers *no* residual effect to prevent later contamination, and if it is poured into a container other than the one it was boiled in, it may be quickly recontaminated. For these reasons, this method should be used only as a last resort, and the water should be used immediately. If the water is to

be cooled before it is used, it should be covered to prevent casual recontamination.

These methods of disinfecting water are a unit's weapons against the silent enemy. A commander must insist that his soldiers practice water

disinfection as part of all unit training and during all unit exercises. If he does, when the time comes for his unit to perform its mission, it will be ready to do it and attain its goal without fear of an attack by the silent enemy.



**CAPTAIN ROBERT J. KAINZ** is now enrolled in a graduate program at Tulane University where he is pursuing a Doctor of Science degree in Occupational Health. Prior to this assignment, he served as environmental science officer at Fort Knox, and commanded preventive medicine detachments in Vietnam and in Germany. He is a registered environmental sanitarian in both Texas and Louisiana.

## TOW and DRAGON TRAINING

**CAPTAIN RALPH E. SANER JR.**

In early 1980, the 1st Battalion, 23d Infantry, 2d Infantry Division, began an intensive training program to improve its antiarmor capabilities. At the time, the battalion was told that it had to have at least two qualified gunners for each of its TOW and Dragon weapon systems.

To meet this requirement, the battalion established a consolidated TOW and Dragon training program and gave it to the battalion's antitank platoon leader to run. It was felt that a consolidated program would not only make the best use of the available equipment and facilities, it would also permit the battalion to develop a good cadre of antiarmor trainers and would ease maintenance problems.

The program called for three train-

ing phases (see Table 1) over three successive weeks. Each phase lasted for five days, from Monday through Friday. Before the training program started, though, the soldiers who were nominated to take the training were thoroughly screened to make certain that they had qualified as expert marksmen with their individual weapons and that they did not have anything in their backgrounds to indicate that they might react questionably under pressure. The battalion insisted that only expert marksmen could attend the program because the skills of such soldiers could be expected to transfer easily to the TOW and Dragon systems.

During Phase I, the soldiers became familiar with either the TOW or

the Dragon and learned the essential gunner skills. The Phase II training period concentrated on qualifying the soldiers as TOW or Dragon gunners.

The final phase, Phase III, was given over to an intensive training period for selected gunners; this culminated in a live-fire exercise.

During the first week, the trainers established two TOW and three Dragon tracking stations, all of which used the same target board vehicle. The Dragon gunners were required to fire from the standing, kneeling, and sitting positions, while the TOW gunners were taught to fire the TOW from both its ground- and jeep-mounted modes. The soldiers were also taught how to select fighting positions, how to prepare those posi-

tions, and how to construct range cards.

The training periods were conducted over rough terrain to simulate the kinds of antiarmor encounters the soldiers might find themselves in in a country such as Korea, and both Dragon M64 cartridges and TOW M80 blast simulators were used to increase realism. Other distractions were also used, such as smoke to obscure a gunner's view of his target and dirt thrown on a gunner to duplicate the effects of an actual firing.

The trainers emphasized the proper body positions and breathing techniques, and carried on concurrent tank identification training, paying particular attention to the North Korean armored forces.

During Phase II of the program, the trainers concentrated on gunner qualification. Each gunner was made to understand that he was competing for the chance to fire a live missile valued at between \$3,000 and \$4,000. In addition, the trainers set up a round-robin performance-oriented test to reinforce the previous week's training.

Based on the results of the previous two weeks of training, a group of selected gunners was assembled in the third week to prepare for the live-fire exercise. The following selection criteria were used:

- Qualification scores.
- Retainability within the unit (six months or more until PCS).
- Rank of corporal or below.
- No previous TOW or Dragon live-fire experience.

The last criterion was put in deliberately to add to the number of personnel within the battalion who had actually fired a live missile.

TABLE I TOW/Dragon Training		
Phase	Instruction	Objective
I	Introduction to weapon system.	Basic gunner familiarization.
	Tracking techniques.	
II	Basic gunner tasks.	
	Qualification tables.	Gunner qualification.
	Testing of gunner tasks.	Selection of live-fire gunners.
III	Advanced individual instruction.	Gunner hits moving target with live missile.

Each of the selected gunners practiced only in the position from which he would be firing the live missile — a position he was allowed to choose for himself on the basis of his success during qualification firing. During practice, the gunners were again subjected to the distractions they had en-

countered during their initial week of training. The only concurrent training station at the tracking site dealt with missile misfire procedures. Finally, on the night before the firing of the live missiles, the gunners were shown films of actual missile launches to better acquaint them with what they could expect the next day.

A tank silhouette moving at a speed of ten kilometers per hour was used as the target for the firing of the live missiles. The Dragon gunners fired from a range of 900 meters while the TOW gunners fired from 1,800 meters. Six of seven Dragon missiles and five of six TOW missiles hit the target in its center of mass.

The live-fire exercise demonstrated that the battalion had established an effective antiarmor training program and that the success of the program had been brought about by a careful selection of personnel, a consolidation of technical experience, the centralized control of equipment, and a detailed evaluation of each soldier's progress throughout the program.



**CAPTAIN RALPH E. SANER JR.,** now attending the Infantry Officer Advanced Course, recently completed an assignment as an anti-tank platoon leader in the 1st Battalion, 23d Infantry, in Korea. He is an ROTC graduate of Westminster College in Fulton, Missouri, and has also completed the Airborne Course, the Dragon Trainer Course, and the TOW Trainer Course. He has also served as officer in charge of TOW and Dragon Training (TSUT) at Fort Knox, Kentucky.





# PAST TIMES



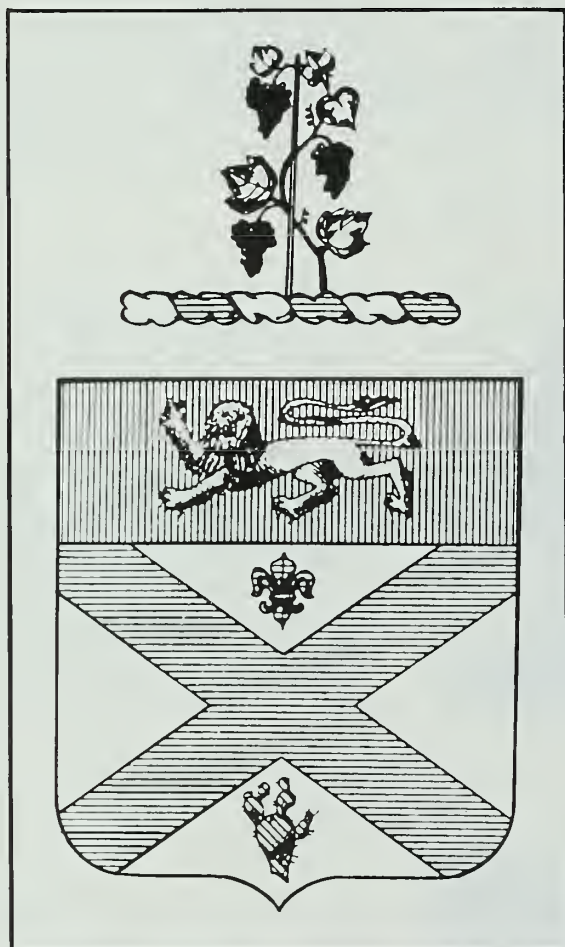
The 1st Battalion, 169th Infantry Regiment, is cited for outstanding performance of duty in action against the enemy on Luzon, Philippine Islands, during the period 15 to 17 January 1945. At 2030 hours on 15 January 1945, the 1st Battalion, 169th Infantry Regiment, was ordered to break contact with the enemy on Hill 355, make a rapid cross-country movement through the enemy lines, and to establish a road block on the North-South National Highway No. 3, denying the enemy use of the highway and preventing any withdrawal to the north. The block was to be established about one and one-half miles northwest of Pozorrubio, Pangasinan Province, Luzon, Philippine Is-

lands. The battalion commander was informed that the establishment of the block before darkness on 16 January was of urgent necessity. The battalion disengaged the enemy on Hill 355 at 2100 hours on 15 January. Although it was raining heavily and the night was pitch black, the disengagement was made in an orderly manner, with only one casualty.

The battalion, after marching all night through muddy rice paddies and across two swollen rivers, arrived at Labney. After a short rest, the march was resumed in combat formation cross country through rugged, hilly terrain. At 1200 hours, 16 January 1945, enemy resistance was encountered just west of the Maloqual River. The battalion bypassed this strong point in order to reach the objective before dark. The block was established on Highway No. 3 at 1700 hours on 16 January 1945. From 2100 hours, 16 January 1945, this position was heavily attacked by the enemy in reinforced company strength. The attack was of such ferocity that the perimeter was penetrated. The men in the perimeter fought until their ammunition was exhausted, then engaged the enemy in hand-to-hand attack and literally drove them from the perimeter. The entire area was cleared of the enemy by 1030 hours on 17 January 1945.

During this action, the battalion sustained casualties of two officers and sixteen enlisted men killed and two officers and fifteen enlisted men wounded. Enemy known dead: Ninety-six. Enemy morale at the start of the attack was exceedingly high. Despite the fact that the battalion had been constantly engaged since D-day, 9 January 1945, and although the strength of the battalion was down, because of heavy casualties, to approximately 550 men and officers, and that the entire command was extremely fatigued from the long and difficult march and loss of sleep, the objective was reached, the block established, and a strong force of the enemy decisively defeated.

The heroic action was a deciding factor in sealing off the enemy escape route to the north. It also flanked the heavily fortified positions on Hill 355, which was later taken from the rear. The courage, fighting spirit, and devotion to duty shown by the members of the 1st Battalion, 169th Infantry Regiment, are in keeping with the highest traditions of the United States Army. (War Department General Order 8, 18 January 1946.)



# ENLISTED CAREER NOTES



## FROM THE BRANCH CHIEF

The letter of instruction to the last MSG/ISG promotion board contained the following instructions concerning drill sergeant duty: "Duty as drill sergeant is important and demanding. Quality performance in this duty is to be considered as particularly indicative of the professional potential of the noncommissioned officer and the manner of performance in this duty should be carefully considered." These instructions indicate the importance of this duty.

Despite previous notes in INFANTRY (November-December 1980) on how to volunteer for drill sergeant duty, our assignment officers still have to write or call applicants to request missing information. I am concerned because of the increased workload generated for the Branch and for the field when we must send applications back or request missing information. But my greatest concern is the number of Infantry soldiers who apparently become frustrated by the paperwork involved and never resubmit their applications.

To help solve this problem, we have sent a message to all MILPOs listing common errors we have noted, and these errors are also summarized in this issue of INFANTRY. My goal is to get interested NCOs on drill sergeant duty as quickly as possible without an administrative hassle.

Another subject of MILPERCEN concern is the processing of foreign service tour extensions (FSTE). Requests for FSTE that are submitted by soldiers after they have been placed on orders cause false strength projections for CONUS units. And when CONUS units submit operational deletion requests after the allowable 45-day period, it causes a

false strength projection for overseas commands.

Because of these problems, career branches have been instructed to disapprove FSTE requests from soldiers already on orders to a CONUS unit unless they involve compassionate situations. Conversely, the assignment support branch, which acts on operational deferments, will take a critical look at and probably disapprove these requests if they are outside the 45-day period.

All of this means that if a soldier overseas wants to extend, he must prepare and submit his request early enough for it to reach the Branch six months before his DEROS. For CONUS commanders, requests for operational deletions or deferments have the best chance for approval if they are submitted within 45 days of a soldier's notification of his assignment.

In closing, congratulations and well done to the 723 Infantry PSGs and SFCs who were selected for promotion to MSG/ISG.

**LTC ROBERT J. GRAHAM**

## DRILL SERGEANT SCHOOL

A number of applications to attend Drill Sergeant School or to reenter the drill sergeant program have to be returned because they have been incorrectly prepared or, in the case of overseas personnel, because the applicant failed to forward the application eight to eleven months before his DEROS.

Some of the most frequent mistakes on the applications are:

- Incorrect, out of date, or no PT test results.

- No statement of mental evaluation.

- No DA Forms 2 or 2-1, or erroneous data on them.

- No recommendation from a commander in the rank of lieutenant colonel or above (for males in the rank of sergeant).

If each soldier will make sure his application is complete and accurate, it will prevent unnecessary delay in getting our most professional soldiers into the vital duty of drill sergeant.

## SF AND RANGER VACANCIES

The Army is looking for enlisted volunteers for Special Forces and Ranger battalion positions at several CONUS installations.

Special Forces volunteers now serving in the following ranks and MOSs are especially needed: SGT/SP5 — 05B; SSG, PSG/SFC — 91B; PSG/SFC — 11C, 12B, 31V; PSG/SFC, MSG/ISG — 11B.

Those who are selected will receive airborne training at Fort Benning, Georgia, and Special Forces training at Fort Bragg and Fort Devens. All Special Forces qualified soldiers are reminded that they must take the Defense Language Aptitude Battery (DLAB) of tests for language training or aptitude in accordance with AR 611-6.

Requirements also exist in the 1st and 2d Battalions (Ranger), 75th Infantry, for 11B soldiers in the rank of SSG and for 13F soldiers in the ranks of SGT/SP5 and SSG.

A soldier who is serving overseas must complete at least five-sixths of his tour before he can return for training and reassignment. His application should be submitted no later than eight months before the date on



which he is eligible to return from overseas.

Ranger volunteers in all grades will receive airborne training at Fort Benning before reporting to their units. SGTs/SP5s and above will also attend the eight-week Ranger course at Fort Benning before joining their units. (DA Pamphlet 351-4 and Chapter 6, AR 614-200 apply.)

The point of contact at Infantry/Armor Branch is SFC Kinsley, AU-TOVON 221-8340.

## PHYSICAL FITNESS STANDARDS

Physical fitness prerequisites for the Airborne, Ranger, and Special Forces qualification courses have been announced and will be validated for one year following the February 1981 implementation date.

Applicants must achieve or exceed the standards indicated below on the Army Physical Readiness Test (APRT) before they are admitted to the courses:

COURSE	PUSHUPS (2 min.)	SITUPS (2 min.)	TWO-MILE RUN (min:sec)
Airborne (males)	45	45	15:59
Airborne (females)	21	32	17:55
Ranger	45	45	15:59
Special Forces	45	45	15:59

All candidates for these courses must take the APRT within 30 days of their departure for the scheduled course and again upon arrival for the course.

In addition to attaining the standards established above, applicants must also meet the following prerequisites:

### Airborne:

- Meet the physical qualifications for airborne duty established in AR 40-501.

### Ranger:

- Meet the physical qualifications for Ranger training established in AR 40-501.

- Execute six chin-ups.

- Possess entry skills based on the Infantry Soldier's Manual (FM 7-11B)

as set forth in DA Pamphlet 351-4, dated January 1980.

- Complete a road march in accordance with the standards specified in Paragraph 3-2b, AR 672-12 (Expert Infantryman's Badge).

- Successfully complete the following three events of the Combat Water Survival Test (CWST): 15-meter swim with equipment; equipment removal; and three-meter drop.

### Special Forces:

- Meet the physical qualifications for Special Forces duty established in AR 40-501.

- Successfully complete the three events of the Combat Water Survival Test listed above for Ranger applicants.

## ASSOCIATE DEGREES

Enlisted servicemembers and warrant officers can now earn job-related associate degrees through the Army's new Servicemembers Opportunity Colleges Associate Degree program or SOCAD.

SOCAD is the first program of its kind in civilian and military adult education within the United States. Colleges and universities join a network in specific occupational-education fields and are linked to major Army installations. Soldiers then contract with these institutions for associate degree producing programs. The degree is assured if the program is successfully completed even if the soldier is transferred or separated from active service.

When they join the SOCAD network, the institutions agree to provide professional counselors to advise soldiers on enrollment, academic matters, and financial aid. They also help soldiers get college credit for the skills, experience, and knowledge they have already acquired in their career specialties.

The program is not Army-wide, but there are plans to expand it. For further information on the program, soldiers who are interested may contact their local Education Cen-

ters or write: Servicemembers Opportunity Colleges, Suite 700, One Dupont Circle, Washington, DC 20036.

## ARMY RECRUITERS

The selection of Army recruiters is the responsibility of MILPERCEN. An Infantry NCO who wants a challenging tour as an Army representative in a civilian environment may apply if he meets the following prerequisites:

- He must be a SGT(P) or a SSG.

- He must have an EERWA score of average or higher for his PMOS and grade.

- He must have no more than 14 years of active service.

- He must have a minimum GT score of 110 or ST score of 100.

- He must be a high school diploma graduate or GED with one year of college.

- He must have no more than two dependents (including wife) if he is a SGT and no more than four if he is a SSG. (Sole parents are not acceptable.)

- He must be between 21 and 35 years of age.

- He must have a minimum physical profile of 232221.

- He must meet height and weight standards in accordance with AR 600-9.

- He must be a U.S. citizen by birth or naturalization.

- He must not be serving in an enlistment for which he drew a VRB or an SRB.

- He must have completed one year since reclassification in accordance with AR 600-200.

- He must have no lost time on his current enlistment and no more than five days of lost time on all previous enlistments.

- He must not be currently assigned to MEPCOM or USAREC in a support MOS.

- He must have 24 months or more of service remaining on his current enlistment upon completion of the recruiter training course, or he must

extend or reenlist in accordance with Chapter 3, AR 601-280.

- He must hold military and state driver's licenses, or he must hold a valid state driver's license and be qualified to obtain a military driver's license.

- He must not be currently enrolled in the Army's Drug and Alcohol Abuse Program.

- He must have a favorable civilian and military disciplinary record, including a good motor vehicle driving record.

- He must have no marital, emotional, or medical problems (including immediate family) that could hamper his performance of recruiting duties.

- He must have excellent military bearing and no obvious distracting physical abnormalities or mannerisms.

A qualified soldier who wishes to volunteer for recruiting duty may submit a DA Form 4187 (Personnel Action) together with current DA Forms 2 and 2-1. The request must be endorsed by a lieutenant colonel or higher in the chain of command to verify that the applicant is a good reflection on the NCO corps, that he is able to represent the Army in a civilian environment, and that he meets the criteria of AR 601-1 and MILPO message 81-80.

Requests will be forwarded through command channels to Commander, MILPERCEN, ATTN: DAPC-EPM-P, 2461 Eisenhower Avenue, Alexandria, VA 22331.

The Infantry/Armor Branch point of contact is SFC Riggins, AUTO-VON 221-8058.

## REENLISTMENTS

AR 601-210 has been expanded to allow selected prior service personnel who were last separated from the active Army in the ranks of SGT/SP5 or SSG to regain those ranks.

Specifically, a prior service member will be permitted to enlist after 93 days from his date of separation (if his Reenlistment Eligibility Code precludes earlier enlistment) provided:

- His PMOS is in a shortage skill and a vacancy exists.
- He enlists within 36 months after separation.
- He is fully qualified to enlist without waivers.

An applicant will enlist at one rank lower than the one he held at separation, but he will regain his former rank (with an adjusted date of rank) after four months of satisfactory performance if he is recommended by his field grade commander.

An applicant who was given a counseling statement for failure to meet time in service requirements will be enlisted at two grades lower than the one he held at separation. He will be advanced one grade after four months of satisfactory performance with the recommendation of

his field grade commander. In this category, the soldier's date of rank will be the date of his promotion.

## SERGEANTS MAJOR ACADEMY BOARD

This year's U.S. Army Sergeants Major Academy (USASMA) selection board will meet in July to choose about 180 senior NCOs for the 1982 USASMA nonresident course. Applications for the course must reach MILPERCEN before 1 June.

To be eligible, a soldier must be in the rank of SGM/CSM, MSG/ISG, or he must be on the DA list for promotion to MSG/ISG. He must also be in the regular Army on active duty and must have less than 23 years of active federal service as of April 1982. This time requirement is waivable, however, depending on the retention of the soldier. Soldiers who have applied before and have been rejected may reapply if they meet the current requirements.

The soldiers who are accepted for the USASMA nonresident course have up to two years to complete the course. They are required to travel (on a temporary duty basis) to Fort Bliss, Texas, only for the last phase of the course, which lasts for two weeks.

Applications must be endorsed by the applicant's immediate commander and must include an updated copy of the soldier's DA Forms 2 and 2-1.

## RESERVE COMPONENT NOTES

### SGM COURSE OFFERED TO RESERVISTS

Senior noncommissioned officers of the Ready Reserve are encouraged to apply for the 1982 U.S. Army Sergeants Major Academy resident and nonresident courses.

Twelve Reservists will have an opportunity to attend the USASMA

Resident Course at Fort Bliss, Texas, while a larger number will be selected for the nonresident course. The deadline for applications for either course is 30 June 1981.

Attendance at the resident course will be in an Active Duty for Training (ADT) status. The course is about five months long with the first 1982 class beginning 15 February

1982 and ending 16 July 1982. The second resident class is scheduled for 9 August 1982 through 22 January 1983.

The material for the nonresident course closely parallels that of the resident course. The nonresident course is self-paced, but students are expected to complete it in two years, which means devoting four to



six hours a week to their studies. The seven nonresident phases are followed by a two-week resident phase at Fort Bliss.

The prerequisites for both courses include:

- A maximum of 23 years of service, waivable if the soldier will have two years of service remaining in the Ready Reserve upon completion of the course.
- Meet security clearance and physical examination requirements as specified in DA Pamphlet 351-4.
- Be in the rank of MSG/1SG or SGM/CSM for the resident course or PSG/SFC to SGM/CSM for the non-resident course.
- Meet Army weight control standards.

In addition to completing a DA Form 145 or DA Form 1058, an applicant must submit copies of his enlisted efficiency reports for the past five years and a copy of his DA Forms 2 and 2-1 or DA Form 20. He must also include his current military photograph annotated to reflect his height and weight.

An applicant for the resident course must give his choice of classes and must include a statement that his employer will release him for active duty if he is selected. Applicants for the resident course will be automatically considered for the nonresident course.

Applications are to be submitted through command channels to Headquarters, DA (DAAR-OTI), and the announcement of selections is expected by September 1981. For additional information, applicants should read DA Message, DAAR-OTI, Subject: U.S. Army Sergeants Major Academy Resident and Non-resident Course, dated 132110Z February 1981.

## USAR MEDICAL CARE

U.S. Army Reservists who are injured or become sick during weekend drill or annual training need to know in advance what they

are entitled to in the way of health care. Failure to understand the policies as contained in Army Regulations 40-3 and 135-200 has already cost some Reservists thousands of dollars.

A reservist who is injured in the line of duty or who becomes sick during training should inform his unit of the mishap and seek care in a military facility as soon as possible.

As a first step, the Reservist should have DA Form 2173 (Statement of Medical Examination and Duty Status) filled out by his unit commander and by the attending physician or the hospital registrar. Failure to accomplish this step could severely hamper any future efforts to secure reimbursement or medical attention.

Once the form is completed, it is up to the soldier's unit commander to see that he is placed in the proper pay status and that he receives disability pay or whatever allowances may apply. Entitlements vary depending on the soldier's duty status at the time his injury or illness occurs.

## ARMY RESERVE RETIREMENT

Enlisted members of the U.S. Army Reserve who have completed a full 20 years of active federal service are now eligible to retire regardless of age with the same benefits as Regular Army enlisted men. Previously, only Reserve officers were eligible to retire after 20 years of active duty. Enlisted Reservists had to wait until age 60 to collect their retirement checks.

The change will immediately affect an estimated 500 soldiers who have accumulated 20 years of active federal service through a combination of long tours, active duty for training, and annual training. (Active duty does not include inactive duty training such as monthly assemblies or any duty performed as a member of the Army or Air Na-

tional Guard under state control.)

The normal Reserve Title III retirement program will remain in effect for those who complete 20 years of satisfactory participation in the USAR.

Further information may be obtained from Commander, RCPAC, ATTN: AGUZ-RAD, 9700 Page Blvd., St. Louis, MO 63132.

## CONCURRENT TESTING

One of the major problems with Reserve Component (RC) Skill Qualification Tests (SQTs) is the administrative burden it places on the RC units. Compounding this problem is the fact that current RC SQTs lag behind the Active Component (AC) tests by one year. This requires the RC units to handle two editions of the tests rather than just one.

This administrative burden may be eased by a new concurrent testing program in which AC and RC soldiers take basically the same SQT during the same test period. The new program should also lessen the confusion in the field and ensure that the RC soldier has, and is tested on, updated information and materials.

A pilot testing program in Career Management Field (CMF) 11 was conducted from 1 June to 31 October 1980 in four Infantry brigades — three Army National Guard and one Army Reserve. Observation and preliminary evaluation has revealed no significant negative effects on the RC soldier.

SQT Fact Sheet No. 81-1 contains further details, plus a schedule of concurrent testing periods and the SQTs to be tested. The Fact Sheet was published by the SQT Management Directorate, U.S. Army Training Support Center, Fort Eustis, Virginia 23604. Requests for it and any questions about concurrent testing should be directed to the Reserve Component Office of SMD, AUTOVON 927-4321/5813.

# OFFICERS CAREER NOTES



## BRANCH CHIEF'S NOTES

The dissolution of the Lieutenant Colonels Division in February put the finishing touches on the OPMD reorganization and paved the way for the total restoration of Infantry Branch to the Combat Arms Division of OPMD.

All OPMD Infantry officers, except for colonels, will now be managed and assigned by Infantry Branch. (Colonels Division remains separate.)

Accordingly, each Infantryman will be assigned by an Infantryman for all specialties and to all assignments. This should make it more convenient and should provide better service to the officers in the field. As outlined in a previous issue of *INFANTRY*, we will also manage and control Specialty 54 (Operations and Force Development). To accomplish our mission we will be organized into cells: that is, LTC, MAJ, CPT, LT and SC 54. The telephone directory included in these notes will help you find your point of contact in the branch.

As the most recent in a long line of Branch Chiefs, I want you to know that I am honored to hold such a position. Further, I pledge to you the best possible service in discharging our responsibility for filling the needs of the field Army while at the same time helping you manage your career. All of us stand ready to help you. Our mission is to place the best qualified available officer in each job and to attend to your needs and preferences.

Our requirements are dictated by a carefully designed system of authorizations for each organization and unit that is a part of our Army force structure. Since we don't have enough Infantrymen to fill every authorized in-

fantry position, an officer distribution plan (ODP) has been developed. The plan establishes the distribution of officers in all specialties on the basis of priorities.

In short, our 11,000 Infantry officer spaces are identified and we assign people to them as they become vacant. We try to give each officer an opportunity to serve in both of his specialties as we put our plan into operation. In your contact with us, you will hear us frequently discuss ODP support. In some cases this is the reason you are assigned to a specific installation — because there is support there. In other cases it is the reason we can't honor your request for a certain installation — because no ODP support exists. Along with this plan we strive to blend the professional development needs of each officer.

We need your assistance in this process.

After eight months in OPMD, I remain somewhat mystified at the outdated preference statements in your files. You are your own best career manager because you know your goals and ambitions, so you should always keep an up-to-date preference statement in your files. Tell us where you would like to be assigned, where and what type of unit you want to command, where you would like to attend your next level of military schooling, and any personal information you would like for us to consider. Communicate with us in writing, by telephone, or by visiting us here at MILPERCEN or with one of our teams at your installation.

Since 40 percent of our Army is overseas, you should also keep abreast of overseas equity and tell us where you want to serve on an overseas tour. Or if you want to volunteer

for overseas duty, tell us that too.

In the assignment process, we use the Officer Record Brief, as well as other documents, so make sure yours is correct. Selection boards also make extensive use of the ORB in discharging their duties.

Finally, with the introduction of the Army Cohesion and Stabilization (ARCOST) initiatives, we are witnessing many challenging and rapid changes in our personnel system. You should keep abreast of those changes and seek the advice and assistance of your commander.

If you will help us we will do our best for you.

LTC JAMES A. SULLIVAN

## FIELD GRADE PROMOTIONS

In the future, promotion selection boards for field grade ranks will operate under a revised secondary zone policy. The new secondary zone policy will allow one consideration from below the primary zone for promotion to major and lieutenant colonel and two for promotion to colonel.

According to the personnel officials, the maximum selection opportunities will be five percent for majors, 10 percent for lieutenant colonels, and 10 percent for colonels. There are no provisions for below-the-zone promotions to captain or lieutenant.

Previously, secondary zone policy allowed two considerations for selection from below-the-zone to each field grade, with a maximum selection opportunity of 5 percent, 10 percent, and 15 percent to major, lieutenant colonel, and colonel, respectively.

In the future, majors and captains



**TELEPHONE DIRECTORY  
INFANTRY BRANCH — COMBAT ARMS DIVISION**

DESK	OFFICER	AUTOVON	COMMERCIAL
Branch Chief	LTC James A. Sullivan	221-0207	(202) 325-0207
LTC SC 11 CONUS Assignments	MAJ Ted Bridges	221-0209	325-0209
LTC SC 11 OS Assignments	MAJ Garrett Cowser	221-7823	325-7823
LTC SC 54 Assignments		221-0209	325-0209
MAJ SC 11 OS/CONUS Assignments	MAJ Lawson Magruder	221-0207	325-0207
MAJ Other Specialty/Nominative Assignments		221-7823	325-7823
MAJ/CPT SC 54 Assignments	MAJ Ted Chilcote	221-0208	325-0208
CPT SC 11 OS/CONUS Assignments	MAJ Terry Young	221-7823	325-7823
CPT Other Specialty/Nominative Assignments	MAJ David Chriddenden	221-0209	325-0209
LT SC 11 OS/CONUS Assignments	CPT Jeffrey B. Dienno	221-7823	325-7823
New Accessions, Recalls, Schools	CPT Alex B. McKindra	221-0209	325-0209
Asst, LTC OS/CONUS Assignments	Mrs. Elaine Martin	221-0209	325-0209
Asst, SC 54 Assignments	Mrs. Margaret Mixon	221-0208	325-0208
Asst, MAJ Assignments	Mrs. Jeannie-Marie Howard	221-0208	325-0208
Asst, CPT OS/CONUS Assignments	Mrs. Lillian Harris	221-0207	325-0207
Asst, CPT Other Specialty/Nom Assignments		221-0207	325-0207
Asst, LT OS/CONUS and Accessions	Miss Cindy Holst	221-7823	325-7823
Branch Representative, Fort Benning	CPT J. M. Bednarek	835-3611	(404) 545-3611

**COLONELS DIVISION**

Specialty 11 (A-K)	LTC Jack Duff	221-7866	(202) 325-7866
Specialty 11 (L-Z)	LTC Myron K. Rice	221-7867	325-7867

**PLANS, PROGRAMS, AND ANALYSIS DIVISION**

Career Program Manager, SC 11 and SC 54	MAJ Allan McDonald	221-0250	(202) 325-0250
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will receive only one consideration but will have the same maximum selection rates of 10 percent and five percent respectively as before. Previously, officers shared a given

year's promotion opportunity with officers of another year group. Now, they will compete only with members of their own year group for below-the-zone selections.

Personnel officers say that the primary reason for this change is to allow officers more time to gain experience and develop professionally in the early field grade years.

## RESERVE COMPONENT NOTES

### **VOLUNTARY RECALL PROGRAM**

A voluntary recall program for reserve component (RC) officers has been approved, and it is expected to fill the Army's specialty shortages in the rank of captain.

The program is an exception to the policy of AR 135-210, which bans recalling RC officers who cannot complete 10 years of active commissioned service by the time they complete 20 years of active federal service.

A captain in either the U.S. Army Reserve or the Army National Guard is eligible for reactivation provided he has completed an extended active duty (EAD) tour as a commissioned officer, is qualified in a selected

shortage specialty, and is otherwise eligible for recall. Retired military personnel are excluded from consideration.

Officers who are recalled will be kept on active duty beyond their mandatory release dates to complete 10 years of active commissioned service unless they are separated for other reasons.

RC officers may apply for active duty under this program in accordance with AR 135-210. Applications should be submitted to Commander, MILPERCEN, ATTN: DAPC-OPP-P, 200 Stovall Street, Alexandria, VA 22332. More information is available at local military personnel offices.

The program will end on 30 September 1982.

### **RC SECOND LIEUTENANTS**

Reserve and National Guard second lieutenants are invited to serve three-year active duty tours under a new voluntary program designed to fill a substantial number of vacancies. The opportunity is available to second lieutenants of all branches except the Medical Services Corps, Nurse Corps, Chaplain candidates and other special branches.

To be eligible, a candidate must have at least two years of college credit and preferably a bachelor's de-

gree. He should meet the height and weight standards of AR 600-9, be available for duty before 30 September 1981, and be able to complete 20 years of active duty before his mandatory removal date.

Completion of an officer's basic course is not a requirement, but any officer who has attended a basic course and failed to complete it is not eligible for the program. In addition, officers who are enrolled in college under the Early Commissioning Program or the Delayed Officer Program are not eligible for active duty until they complete their degree requirements.

Interested officers who are serving in Reserve or National Guard units should send their applications through command channels to the Reserve Components Personnel and Administration Center, ATTN: AGUZ-RCA-AD, St. Louis, MO 63132. Those who are not in units should send their applications directly to RCPAC. A complete application must include DA Form 160 prepared in duplicate, documentary proof of appointment, college transcripts, performance reports, and a recent full-length photograph.

The officers who are brought on active duty under the program will be able to compete at the appropriate time for Voluntary Indefinite status or for Regular Army status.

Anyone who would like further information may call (800) 325-1874 toll free, (314) 263-7623/7707, or AUTOVON 693-7623/7707.

## APPLY FOR SERVICE COLLEGES

Army Reserve officers have until 10 July 1981 to apply for 1982 senior service college and command and staff college courses.

According to training officials in the Office of the Chief, Army Re-

serve, officers of the Ready Reserve and those on Active Guard and Reserve (AGR) tours are encouraged to apply for the following resident and nonresident courses:

- U.S. Army War College resident course at Carlisle Barracks, Pennsylvania — July 1982 to July 1983.

- National War College resident course at the National Defense University, Fort McNair, Washington, D.C. — July 1982 to June 1983.

- Industrial College of the Armed Forces resident course at the National Defense University, Fort McNair — July 1982 to June 1983.

- U.S. Army War College Corresponding Studies Course, a two-year curriculum paralleling the resident course and consisting of nonresident studies plus two two-week resident phases at Carlisle Barracks.

- Armed Forces Staff College resident course at Norfolk, Virginia — one class August 1982 to January 1983 and another January 1983 to June 1983.

- U.S. Marine Corps Command and Staff College resident course at Quantico, Virginia — August 1982 to June 1983.

- Command and General Staff Officer Course in residence at Fort Leavenworth, Kansas — July 1982 to June 1983.

- Command and General Staff Officer Course, Reserve Component, in residence at Fort Leavenworth — August 1982 to December 1982.

- Combined Arms and Staff Services School resident classes at Fort Leavenworth — January 1982 to March 1982 and October 1982 to December 1982.

- Logistics Executive Development Course resident classes at Fort Lee, Virginia — January 1982 to May 1982 and August 1982 to December 1982.

Applicants for the senior service colleges must be colonels or lieutenant colonels, or majors who will be

promoted to lieutenant colonel by 1 August 1982. They must have between 15 and 25 years of commissioned service as of that date and must have completed the equivalent of a command and staff college course. They also must have final top secret clearances.

The prerequisites for the command and staff colleges are at least eight but no more than 15 years of commissioned service as of 1 August 1982, completion of an officer advanced course, and the rank of major by the course's starting date. Captains may attend either of the Command and General Staff Officer Courses and also the Combined Arms and Staff Services Course. Top secret or final secret clearances are required, depending on the course.

All command and staff college courses are considered equivalent, and applicants who are not selected for their first or second choices will automatically be considered for all the other command and staff courses, provided they are available to attend.

Officers on AGR tours must be within 12 months of completing their current tours as of the date the course starts. Those on their initial two-year AGR tours may not apply.

Applications should be forwarded to Department of the Army, ATTN: DAAR-OTI, Washington, DC 20310. Unit members should apply through their chains of command, while control group members should apply through the Reserve Components Personnel and Administration Center. Reservists in AGR status and MOBDES officers should apply through their proponent agencies and then RCPAC.

For more detailed information on application procedures and restrictions, interested officers should write to the Office of the Chief, Army Reserve, Washington, DC 20310, or call (202) 697-8619 or AUTOVON 227-8619.



# BOOK REVIEWS



**THE BATTLE OF THE WASHITA: THE SHERIDAN-CUSTER INDIAN CAMPAIGN OF 1867-1869**, by Stan Hoig (University of Nebraska Press, 1979. 268 Pages. Paperback \$4.95). Reviewed by Professor Benjamin F. Gilbert, San Jose State University.

Some questions concerning Sheridan's Indian campaign remain unresolved because the historical evidence is confusing, conflicting, and incomplete. But this fascinating book, originally published in hardcover in 1976 and now in inexpensive Bison book format, is a thorough analysis of the subject. The author, a professor at Central State University in Oklahoma, tries to be impartial as he evaluates both Custer and the Indians so that the reader may reach his own conclusions, but the evidence he presents tends to be anti-Custer and pro-Indian.

In 1867 a serious Indian problem plagued Kansas because the Indians were reluctant to relinquish their hunting grounds in the western part of the state. At the Council of Medicine Lodge, the wild tribes of the plains clearly demonstrated that they did not want to settle down on reservations and learn to adopt the white man's ways. The Cheyennes, in particular, interfered with plans to open land on the prairie for homesteads. They also opposed the construction of railroads to move Texas beef to Kansas railheads and to transport mail, merchandise, and immigrants to the west coast.

A series of Indian raids in August 1868 on the Saline and Solomon Rivers settlements in Kansas convinced General Philip Sheridan that only a punitive policy would bring the warring tribes to terms. Since the numerous small roving bands of Indians

could elude his cavalry units during the summer, Sheridan planned a winter campaign against their fixed camps.

Sheridan's plan called for three columns from Forts Bascom, Lyon, and Dodge to advance on the valleys of the Canadian and Washita Rivers in western Indian Territory where the Indians had their winter camps.

After marching from Dodge, Lieutenant Colonel George Armstrong Custer of the 7th Cavalry established a new base at Camp Supply and then pushed through heavy snows to locate the Cheyenne village of Chief Black Kettle in the Washita valley. In the battle that followed, Custer gained his only victory over the Indians, killing 103 and more than 800 of their horses.

Entertainingly written and generously illustrated with 28 contemporary photographs, the book also has extensive footnotes and a praiseworthy bibliography. Those interested in Custer and the Indian wars in the West should enjoy it.

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**AIR WAR SOUTHEAST ASIA, 1961-1973**, by Myron J. Smith, Jr. (Scarecrow Press, 1979. 298 Pages. \$15.00). Reviewed by Captain Don Rightmyer, USAF, Office of Air Force History.

With the gradual move toward a more objective analysis of the history, tactics, and operations of the Southeast Asia conflict, there is a real need for good bibliographic aids to help cover the subject. Myron Smith, of Salem College, West Virginia, has produced just such an aid on the air war over Vietnam.

His is an annotated bibliography of the air operations of all four U.S. services, as well as those conducted by

South Vietnam and other allied countries. It covers books, monographs, articles, scholarly papers, and also studies done at the U.S. Air Force's Air University. It also includes a guide to the bibliographic sources and to 16mm films on different aspects of the war. The more than 3,000 entries are virtually all identified with a short non-critical explanation to insure clear understanding of the subject covered.

There are only two minor problems with this work. Many of the Air University studies listed are still classified and may prove slightly more difficult to obtain than indicated. And as a basic research tool, the book should have a more detailed index, although the one that is provided is adequate.

This is an excellent volume on the whole and will prove extremely valuable to researchers and professional military readers in the decades ahead.

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**LEADERSHIP**. By James MacGregor Burns (Harper and Row, 1978. 531 Pages. \$15.00). Reviewed by Colonel George G. Eddy, United States Army, Retired.

It should be abundantly clear to students and scholars of leadership that we are dealing with certain phenomena that involve leaders, followers, and changing situations. But this knowledge does not provide sufficient guidance to help us predict on a consistent basis who will be a good leader or who will not.

In the military services, the concern is with organizational leadership, wherein the military leader attempts to exert his influence in a relatively highly structured environment. One simply cannot imagine, for in-

stance, a George Patton on a soap box in a park trying to persuade casual passers-by to join him in a march on the local welfare office. What we are used to is concern about the performance of squad and platoon leaders and of battalion and division commanders in organizations and circumstances that are familiar to military men.

While these organizations and circumstances may constitute typical leadership environments about which we should know a great deal, all of our years of study and the volumes of research we have read have left us still dissatisfied. Now along comes another book on the subject, this one by James MacGregor Burns. Its jacket cover touts it as being "a fresh approach that looks behind brute power to the tangled roots and the rich human potential of genuine leadership . . . an intellectual breakthrough."

Although the author observes that "leadership is one of the most observed and least understood phenomena on earth," his book, unfortunately, is not a breakthrough, nor does it lead to a new or useful general theory, as he claims. Burns gets entangled in an impenetrable thicket of "modal" values and "end" values (whose definitions are in terms of each other), transactions, transformations, conflict and choice, "culturally universal" sequences of events leading to "higher purposes," and causation.

Reading this book is like being baptized in a torrent of water, when all that was needed was a few drops in the right place. On its surface, this book has the appearance of a thorough and scholarly new treatise on the subject and presumably constitutes a significant advance in the understanding of leadership. It does not.

It lacks clarity, cohesiveness, and real substance. What it is, for the most part, is a compendium of short stories or sketches of known, historical figures, laced throughout with seemingly erudite observations on the meaning of it all. In short, the

book is pretentious.

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**THE NEW RED LEGIONS: AN ATTITUDINAL PORTRAIT OF THE SOVIET SOLDIER.** By Richard A. Gabriel (Greenwood Press, 1980. 246 Pages. \$22.50.)

**THE NEW RED LEGIONS: A SURVEY DATA SOURCE BOOK.** By Richard A. Gabriel (Greenwood Press, 1980. 252 Pages. \$40.00.) Both volumes reviewed by Lieutenant Colonel R. J. Rinaldo, Headquarters TRADOC.

In the first volume of this set, which is boring and poorly written, Richard A. Gabriel surveys the attitudes of 113 Russian emigres, mostly Jewish, and arrives at an unsettling conclusion: He would have us believe that the same culture that spawned Tolstoy's vivid statements about war and the spirit of an army and also survived twenty million casualties during World War II has developed an armed force that might come apart under fire.

Gabriel's two volumes constitute a paradigm of social science research at its worst. His data base of 113 respondents is nearly useless, except to provide a subjective portrait of the respondents and their military experiences.

That portrait may well be the books' saving grace. It provides some insight into Soviet military life to include low pay, poor food and housing, little time off, hard training, overcrowded barracks, and generally harsh conditions. The picture is not that of a ten-foot tall soldier.

More important, Gabriel generalizes from already suspect data on the *peacetime* cohesion of Soviet units to predictions of *combat* effectiveness. Yet he cites the famous Shil-Janowitz study of the German Army during World War II where "German soldiers, NCOs and officers comprised a

supporting web of strong personal relationships generated by the personal experience of combat stress itself."

Indeed, the true fighting mettle of an army might well be forged only in the crucible of battle. Until that time, facile assertions based on limited data should be taken with a grain of salt. Read Tolstoy instead, or Field Manual 30-40. Both are better written, too.

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**THE APOSTLES OF MOBILITY: THE THEORY AND PRACTICE OF ARMoured WARFARE.** By Field Marshal Lord Carver. The Lees Knowles Lectures, 1979 (Holmes and Meier, 1979. 108 Pages.)

The author retired from the British Army in 1976. His last assignment was Chief of the Defence Staff. Prior to that he had served many years with the British armor forces.

In the four relatively brief chapters that make up this book, all based on a lecture series he presented several years ago, Lord Carver gives his views on what he considers the major differences between the theory and the actual practice of armored warfare. His primary emphasis is on "the relationship between how the military commander is taught or influenced by military theorists to conduct a battle or campaign, usually in the undeterminable future, and how he actually does so in the event: how much success, or failure, on the battlefield can be related to the official teaching or the unofficial influence that preceded it."

Lord Carver believes that while the theorists might have some influence on the development of a particular vehicle, or weapon system, the actual results achieved by the battle commanders owe little to the theorists' teachings and far more to "tactical improvisations."

This is a well-done and most interesting presentation. It should also help dispel some of the myths that seem to have arisen about the conduct of armored warfare since the appearance of the tank on the battlefield during World War I.

**NOTE TO READERS:** All of the books mentioned in this review section may be purchased directly from the publisher or from your nearest book dealer. We will furnish a publisher's address on request.



**ALL QUIET ON THE EASTERN FRONT.** Edited by Anthony T. Bouscaren (Devon-Adair, 1977. 164 Pages. \$5.95.) Reviewed by Lieutenant Colonel Jerry M. Sollinger, United States Army.

Inevitably, the study of any historical event will produce literature that runs counter to the prevailing record. This counter current occurs, in part, because authors strive to say something different to attract a publisher's interest, but they also happen because one view rarely tells the whole story. When it appeared, Anthony T. Bouscaren's collection of essays dealing with the fall of South Vietnam may well have marked the beginning of a revisionist wave.

The essays make absorbing if painful reading. The contributors range from the balanced to the biased, hawk and dove, Republican and Democrat. Several points clearly emerge.

First, from the time of the Paris accords, the American political role in Vietnam was one calculated to extricate the United States regardless of the cost to our Vietnamese allies. In effect, the South Vietnamese were tragically caught in a conflict between our executive and legislative branches of government. Thus, the South Vietnamese found themselves trained and equipped to fight an American war without the resources to do so. Without those resources, military and political collapse was inevitable.

No American who was ever involved in South Vietnam can read accounts of that collapse without a sense of embarrassment and shame, for each of the essays makes clear that victory was possible. After 1968, the conflict had ceased in any fashion to be a guerrilla war and had become a conventional action, one that the South Vietnamese could have won on their own had we supplied the promised aid.

The essays unanimously argue that our failure to do so damaged severely and perhaps irrevocably our prestige in Southeast Asia and the rest of the world. In the midst of all of the rhet-

oric and spilled ink, one clear fact emerges: the United States will stand by while a sworn ally goes down to defeat.

What does not emerge as a matter of specific comment but is nonetheless clear is the incredible naivete of Americans at the conference table. After more than 30 years of dealing with the communists, we have failed to learn that they just do not bargain in good faith. They simply seek another means to ensure their ends.

All the book's essays merit close attention and deep thought. We can only hope that Aleksander Solzhenitsyn erred when he predicted that we who failed Vietnam — not our sons, but ourselves — will die in the defense of America.

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**THE IMPERIAL JAPANESE NAVY, 1941-1945.** By Paul S. Dull (United States Naval Institute Press, 1978. 402 Pages.) Reviewed by Rear Admiral George L. Phillips, United States Navy, Retired.

The battle history of the Japanese Navy is splendidly presented in this excellent account, a piece of work that took the author many years to write and that clearly reveals the painstaking effort required to collate the official Japanese records with those of the United States, Great Britain, and the Netherlands.

The book is aimed at covering the surface battles, and so the carrier and submarine actions are treated only incidentally. Indeed, the latter have already been awarded so much priority in the vast bulk of Pacific war histories that it is eminently fair at last to look at the numerous gun-to-gun ship battles that contributed so much to the defeat of the Japanese.

Battle by battle, from the British loss of the *Prince of Wales* and the *Repulse* off Malaya, to the Coral Sea, Midway, the Aleutians, to the Philippine slugging matches at Samar, San Bernardino Strait, and Surigao, and finally to the British action at the Andaman Islands, the last surface battle of the war, these affairs of battleships, cruisers, and destroyers

brought punishing losses to both sides. For the Japanese, their all-out gamble for a decisive battle was not enough to match the American wealth of resources, and inevitably the Island Empire retreated step by step to ultimate defeat.

Dull's massive book is a masterpiece of history, and it is a fitting memorial to the passing of the great battleships and cruisers. As a study of strategy, tactics, and logistics, of the uncertain chances of battle, and of leadership (both audacious and indecisive), it is a piece of work worth owning.

Great credit is due for the superior battle track charts, which have been executed with detailed accuracy, and for the official Japanese photographic matter that accompanies the text.

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**TOUR GUIDE TO OLD WESTERN FORTS.** By Herbert M. Hart (Pruett Publishing Company, 1980. 212 Pages. \$22.50).

In the 112 years between 1804 and 1916, the United States Army built and manned better than a thousand forts, camps, and stations in what are now 17 states west of the Mississippi River.

The author is a career U.S. Marine who has had a long love affair with old military posts, abandoned or otherwise. In this book, he gives directions to many of those sites — a number of which are still active installations — for which directions can be given. (To find out what can be seen at each location, the author's four-volume *Forts of the Old West* should be consulted.)

This is an outstanding reference book, particularly for those who are interested in the history of the American West.

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**RICHMOND REDEEMED: THE SIEGE AT PETERSBURG.** By Richard J. Sommers (Doubleday, 1981. 667 Pages.) Reviewed by Lieutenant Colonel Richard P. Dexter, United States Army.

The last book I reviewed for IN-

FANTRY won a Pulitzer Prize. I believe this book is in the same category.

Richard Sommers has produced a masterpiece of scholarly research and combined it with a lyrical narrative that makes his vast amount of material quite easy to take. His treatment of this often neglected but pivotal and climactic campaign is classical and will be a standard for future works on the Civil War.

The author has packed into more than 600 pages minute details and vivid descriptions while tempering this with an incisive analysis of the strategy and tactics of the campaign from both sides of the breast-works. His treatment of General Grant's motives, objectives, and methods of operation during the Fifth Offensive are especially penetrating. Grant the butcher becomes Grant the master strategist, and the Petersburg campaign becomes a product of "brilliant genius" in a war of attrition whose outcome was predestined.

This book will rank in the top ten of any list of Civil War histories and brings fresh analysis into an era that has been fully researched before. I recommend this book to the Civil War scholar for its analytical insights, and to the Civil War buff for its lucid and graphic portrayal of all aspects of the times.

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**ANTIETAM: THE PHOTOGRAPHIC LEGACY OF AMERICA'S BLOODIEST DAY.** By William A. Frassanito (Charles Scribner's Sons, 1978. 304 Pages. \$15.95.)

Using many of the same techniques he used earlier in a book on the battle of Gettysburg, the author has produced a deeply moving account of another one of the Civil War's epic struggles, the battle of Antietam.

Fought on 17 September 1862 — "the bloodiest single day in American History," the author claims — the battle (known to Southerners as the battle of Sharpsburg) cost the opposing forces 26,000 casualties.

Frassanito concentrates his attention on 95 photographs taken either

immediately after or within a month following the battle by Alexander Gardner and James F. Gibson. Sixty-three are included in this book. These were the first photographs taken of an American battlefield before the dead were buried. In addition, Frassanito includes modern views of the same locales, as well as photographs of individuals who fought in the battle. For the latter, he gives what biographical data he can.

The student of Civil War history should not be without this book.

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**PACIFYING THE PLAINS: GENERAL ALFRED TERRY AND THE DECLINE OF THE SIOUX, 1866-1890.** By John W. Bailey (Greenwood Press, 1979. 236 Pages.) Reviewed by Lieutenant Michael E. Long, Fort Leonard Wood, Missouri.

America's westward expansion produced its share of military heroes. One of those was a New Englander, Alfred Howe Terry. Born in Hartford, Connecticut in November 1827, Terry emerged as a significant personality during a critical period in the country's history.

Bailey brings Terry's activities into sharp perspective as he describes Terry's involvement with Indian affairs beginning with his selection to the Indian Peace Commission of 1867. He again represented the Army on the Peace Commission of 1868. From this experience, Terry concluded that "the military branch of the government could best project honesty and firmness into the Indian situation." According to Bailey, Terry's stand on the Indian question "did not represent a power grab on the part of the military but rather an honest effort to come to grips with the situation and resolve it in a manner that would be best for all involved."

The author's narrative is easy to read and is thoroughly documented and well illustrated. It is a valuable reference work for the military historian.

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**CULTURES IN COLLISION.** By

William J. Duiker (Presidio Press, 1978. 226 Pages. \$12.95.) Reviewed by Captain Russell L. Boraas, United States Army National Guard.

In the summer of 1900, the foreign legations in Peking, China, were besieged by an indigenous force that was trying to end foreign presence and influence in the country. The besiegers, commonly referred to as "Boxers," were encouraged, or at least tolerated, by the Empress Dowager and other members of her government. Eventually, the siege was lifted by an international military force that included 1,700 United States soldiers.

The Boxer Rebellion is well worth the attention of every military leader. Its causes can teach much about the antagonisms that can develop when technologically advanced nations come in contact with a traditional culture. Too, the results that flowed from the end of the Rebellion remain important historical experiences to contemporary Chinese leaders and we should be aware of this when we deal with the Chinese. And at a time when the United States seems to be under attack in much of the world, the Boxer Rebellion should be remembered as a past example of how to avoid such situations and how future relief missions might be conducted.

This particular book plows no new ground and suffers from an almost total lack of documentation. There are other books that tell the story better

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**THE VICTORIAN AND EDWARDIAN ARMY FROM OLD PHOTOGRAPHS.** By John Fabb (North Pomfret, Vermont: Batsford, 1975. 128 Pages. \$17.50.) Reviewed by Lieutenant Harold E. Raugh, Jr., The Berlin Brigade.

This magnificent book is a superb collection of 154 photographs that depict the lives and times of the soldiers in the British Army during the reigns of Queen Victoria and her son and successor, Edward VII.

All facets of military life are cov-



ered in this photographic compendium, from recreation, training, and barracks life to active campaigning. Lord Wolseley, Lord Roberts, Lord Kitchener, and General Gordon are but a few of the more famous personages who are depicted; the rank and file are included as well.

There are action photographs of the Indian Mutiny (1857), the attack on Peiwar Kotah (1879), the Chitral Campaign (1895), and the Tirah Campaign (1897), and they disclose a wealth of information and detail that no text could adequately describe. The littered site of the British encampment at Isandhlwana after it had been overrun by the Zulus (1879) is shown, as is the battlefield at Spion Kop, the site of a crushing British defeat during the Boer War (1900).

This book is invaluable to the student of Victorian military history and it is definitely worth the price.

**THE USSR AND AFRICA: NEW DIMENSIONS OF SOVIET GLOBAL POWER.** By Morris Rothenberg (Advanced International Studies Institute in Association with the University of Miami, 1980. 280 Pages.) Reviewed by Colonel James B. Motley, National Defense University.

The author believes that the Soviet Union now views Africa as one of the most promising targets for reducing Western influence. That continent, he believes, has become an area of both increased opportunities and decreased risks for Moscow, ideologically and geographically. As such, the Soviet advances in Africa confront not only the Western powers but the Africans themselves with a "challenge of new dimensions."

The book is divided into three sections. The first deals with Soviet advances in Angola, Ethiopia, and Zaire. Next, the author examines the Soviet concepts of how to consolidate and capitalize on the advances that have been made. And, finally, he presents the Soviet perspectives on future advances in Rhodesia, Namibia, and the Republic of South Africa. Unfortunately, the book does not contain a bibliography or maps.

Moscow, today, is portrayed as moving with caution but with "a relentless effort to dislodge the West from its remaining positions in Africa," and the author believes that South Africa will remain the "supreme target."

This is an informative work that provides a number of penetrating insights into an area that now appears high on the Soviet agenda for "opportunistic adventurism." It is recommended for the general reader, the student, and the scholar.

**DECLINE OF AN EMPIRE: THE SOVIET SOCIALIST REPUBLICS IN REVOLT.** By Helene Carrere d'Encausse (Newsweek Books, 1979. \$10.95.) Reviewed by Lieutenant Colonel Sewall H. Menzel, United States Army Armor Exchange Officer, Peru.

This dispassionate and timely book provides a starting point for those who must think beyond the first battles and on to the final campaigns that will probably seek to overthrow the predatory Soviet state — the USSR. Far too many people continue to think of the Soviet Union as being one vast, monolithic, integrated state impervious to outside influences. It is not, and this book highlights the important aspects of the conglomeration of the almost 100 distinct nations and peoples that make up the USSR.

The author analyzes aspects of the national consciousness of each major ethnic group in terms of language, economic situation, religion, culture, heritage, and tradition. Her information reinforces what Soviet dissidents and others have been saying during the past decade: The fires of nationalism have yet to be extinguished and that the dream of independence still lingers among a majority of the Soviet-dominated peoples.

Today, this indomitable spirit continues to be a real point of vulnerability for the Soviet state, one that it has never been able to totally repress or hide. Here, too, is a potential climate that the astute psychological campaigner and military strategist could exploit.

The psychological bomb of oppressed and disillusioned peoples, which the Berlin Wall so appropriately symbolizes, could, if triggered, destroy the Soviet apparatus. The author, professor and director of the USSR Studies Section at the Institute of Political Sciences in Paris, provides a useful light by which a future victory may be seen.

#### RECENT AND RECOMMENDED

**U.S. ARMY HANDBOOK, 1939-1945.** By George Forty. Charles Scribner's Sons, 1980. 160 Pages. \$14.95.

**MOUNTED COMBAT IN VIETNAM.** By General Donn A. Starry. Vietnam Studies Series. Department of the Army, 1978. 250 Pages.

**IRON ARM: THE MECHANIZATION OF MUSSOLINI'S ARMY, 1920-1940.** By J. J. T. Sweet. Greenwood Press, 1980. 217 Pages. \$25.00.

**THE CAMERA AT WAR.** By Jorge Lewinski. Simon and Schuster, 1978. 240 Pages. \$17.95.

**A GUIDE TO WARGAMING.** By George Gush and Andrew Finch. Hippocrene Books, 1980. 257 Pages. \$19.95.

**DOES DEFENSE BEGGAR WELFARE?: MYTHS VERSUS REALITIES.** By James L. Clayton. National Strategy Information Center, 1979. 71 Pages.

**TECHNIQUES OF VIGILANCE: A TEXTBOOK FOR POLICE SELF-DEFENSE.** By Kevin Parsons. Charles E. Tuttle Company, 1980. 284 Pages. \$35.00.

**A SHORT RESEARCH GUIDE ON ARMS AND ARMED FORCES.** By Ulrich Albrecht, et. al. Facts on File, 1980. 112 Pages. \$17.50.

**AMERICA'S MILITARY PAST: A GUIDE TO INFORMATION SOURCES.** By Jack C. Lane. Volume 7 in the American Government and History Information Guide Series. Gale Research Company, 1980. 280 Pages. \$28.00.

**SAGA OF THE SUPERFORTRESS: THE DRAMATIC STORY OF THE B-29 AND THE TWENTIETH AIR FORCE.** By Steve Birdsall. Doubleday and Company, 1980. 346 Pages. \$19.95.

**THE BATTLE OF JUTLAND.** By Geoffrey Bennett. Third Impression. Hippocrene Books, 1980. 208 Pages.

**RAW MATERIAL SUPPLY IN A MULTI-POWER WORLD.** Second Edition. By Yuan-li Wu. National Strategy Information Center, Incorporated. Published by Crane, Russak and Company, 1979. 99 Pages.

# INFANTRY LETTERS



## SUCCESSFUL SOLDIERING

Dear Sir,

For the past several years, I have read with increasing displeasure numerous articles and papers on the subject of soldiering. Ideas on what to do and what not to do have been addressed from every conceivable angle. Anyone who has doubts about being a successful leader can pick up almost any professional journal and read an article designed to correct his deficiencies.

Well, enough is enough, I say. I have no idea whether or not I possess the 11 traits of a leader or whether or not I follow the 14 rules for positive leadership, and I'm not going to worry about it any more. I try to follow three basic rules, which for the most part encompass all the good points about being a soldier and a leader.

Behind door number one we have "Look like a soldier." This seems simple enough, but all you have to do is look around and it's obvious that there are diverse opinions about what a soldier should look like.

It is more than a shoeshine and a haircut. It is blackening the belt tip and belt buckle before the brass shines through. It's making sure the camouflage stick covers all the right places regardless of how much you dislike it. It also includes standing a little bit straighter knowing you're a representative of our Government to everyone you meet.

It's trimming those loose threads on your uniform and making sure all your patches and tabs are sewn on correctly. For some of us, it also includes maintaining our body weight in accordance with the prescribed standards.

Whether you're an infantryman, a

medic, a cook, or a lawyer, looking like a soldier requires diligence.

Over at door number two, "Act like a soldier" is revealed. No biggie here, you say, but consider the number of times soldiers avoid saluting their superiors, or how often you hear soldiers maligning their peers or their leaders.

Other soldiers begin shutting down their operations long before quitting time, or are reluctant to answer the telephone after 4:30. Field training exercises are not always warmly received, and lots of leaders and subordinates go to elaborate means to get out of them. Sometimes it's far easier to suck it up and get on with the mission than to create ways of avoiding some perceived unpleasantry.

Acting like a soldier often requires enthusiasm and initiative on the part of leaders and subordinates; nobody said it was always going to be easy.

At door number three, last but certainly not least, is a tough one: "Be where you're supposed to be when you're supposed to be there with the right tools and equipment to do the job." It's tough to study for your SQT if you threw away your Soldier's Manual because it took up too much room. It's tough to change socks during a break on a road march if you left your socks behind so you could take along a radio instead.

Cooks have a hard time preparing hot rations in the field if the mess sergeant failed to make sure all the parts for the field stoves were present and working before they left the motor pool. And staff calls are often

**We welcome letters to the Editor on any subject that has been treated in our magazine as well as on issues of general interest to our readers. All letters are subject to editing and possible abridgment.**

dragged out because several people have to go get pencils and paper so they can take notes.

I could go on and on about being present on time and getting on with the task at hand, but I'm sure you get the picture.

Being a soldier isn't all parades and payday activities; it never was. As we acquire more and more sophisticated equipment, soldiers are going to be challenged to get on with the mission much moreso than in the past. Maybe by following these three basic rules, we can all make getting on with the mission a bit easier.

STEPHEN L. ORRISON  
CPT(P), Infantry  
Washington, D.C.

## LAYING MORTARS

Dear Sir,

I have just had an opportunity to read the article "Hip Shooting," by Captain George L. Humphries, in your September-October 1979 issue. I would like to make the following comments and additions.

Reference the fabrication of the chest-high platform used in laying the mortar — the six-inch piece of 2" by 4" wood fastened to the five-foot 2" by 2" pole would best be fastened by a wooden dowel and glued, because nails would affect the accuracy of the compass.

Reference the "Fort Sill solution" with pegs and engineer tape — this is a variation of the technique used by self-propelled artillery and armor units during their preparation of range cards.

I offer the following as a possible solution for the mortar tracks to respond rapidly to fire mission requests



while on the move: Mount a modified marine-style or aviation-style compass in the driver's compartment and, ideally, a second one near the track commander. In the case of the mortar tracks, the modification should include a 6400-mil scale and a mirror to reflect the announced azimuths. When the deflection to the target was announced, the driver would halt and use pivot steering to align the tracks with the mirror azimuth. The tubes would then be pointed down range.

As was stated in the article, the tubes would have to be indexed and white lined. Additionally, the modified compass would have to have the magnetic declination indexed or offset, the same as our aircraft compasses are now. The compasses in two locations on each vehicle would provide an instant recheck. The compasses on each vehicle would also put the tracks on a parallel sheaf right away.

In desert warfare, prominent terrain features may be few and far between, and the compass system on each vehicle, along with a speedometer mileage log, would give the crew a built-in dead-reckoning system without their having to halt, dismount, and move away from the track to take a reading as is required with handheld compasses. The track commander could keep track of his location during travel with a bearing from his compass and with recorded mileage checks from the driver.

SGM JAMES L. LEWIS  
U.S. Military Training Mission  
Saudi Arabia

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#### PLATOON SIMULATION GAME

Dear Sir,

In response to the article on the NBC calculator (INFANTRY, July-August 1980, page 41), and because of a desire for a training device for platoon leaders that would use the same concept, I have developed a battle simulation program that is designed to make infantry platoon lead-

ers more aware of the firepower at their disposal.

The game begins with a scenario that states the target and the range. The player then decides which weapon he wants to employ. A programmable calculator responds with the outcome, taking into consideration the weapon the player chooses, the target, and the distance. Each hit, miss, or suppression is totally random and simulates a soldier firing.

For example, in one scenario, the target might be a BMP at a range of 91 meters. Let's say the player elects to engage it with one round from the LAW. The calculator responds that he has missed. After a simulated adjustment is made, the second round yields a hit.

All of the weapons at a platoon's disposal — 81mm mortar, TOW, Dragon, LAW, .50 caliber and M60 machineguns, and M203 — are printed on a plastic insert. All that is required is a programmable calculator with a module for alphanumeric and random number capabilities, and a printer.

The game is not limited to one player. Platoon leaders can match wits for the best use of firepower and can decide whether a TOW is attached.

I recommend such a game at platoon level. The payoff would be that with it the junior officer could gain a better understanding of the weapons he has at his disposal.

Anyone who is interested in further details may write to me at the 2d Battalion, 141st Infantry (M), 1430 Horne Road, Corpus Christi, Texas 78416.

RONALD W. BOYD  
2LT, Infantry

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#### BE CONSTRUCTIVE

Dear Sir,

The excellent November-December 1980 issue of INFANTRY contained an article by Captain L. A. Altersitz concerning his proposal for an antitank hand grenade. The article was well organized and it included a

perceived problem and a possible solution. What I found particularly disappointing, however, was the Editor's Note which followed the main article. The reply occupied almost as much space as Captain Altersitz' proposal, and it struck me as condescending in tone and somewhat unnecessary.

For example, in the Editor's Note, the Weapons, Gunnery and Maintenance Department commented, "Although this department does not have the expertise to thoroughly evaluate the design of the proposed grenade, it probably would not perform as desired." If every idea in the realm of tactical and weapons innovation were rejected out of hand by people who do not have the expertise, I shudder to think where our Army, and Infantry in particular, would be. If the department does not have the expertise, then the reply was wholly inappropriate.

In the next paragraph is this comment: "It would be necessary to throw the grenade from extremely close range. This could very well bring the thrower within range of other hostile weapons as well as into the blast area of the grenade itself." Combat in cities will require room-to-room fighting as well as closing with the enemy!

As a final example, the department says, "The concept of the HEAT hand grenade is not new. It does have various uses and offers the infantryman a last-ditch capability against armor. The Army is now studying such a grenade . . ." That seems to be generally what Captain Altersitz was addressing. So why use four paragraphs all but denouncing his proposal?

The point of this letter is that INFANTRY is an outstanding professional publication that provides a forum for the discussion of common problems and solutions as well as the dissemination of new doctrine and other information. *Constructive* criticism is encouraged.

Captain Altersitz' article may have been flawed in certain areas, but his overall concept and requirements

were well-intentioned. Encouraging also is his contribution as a National Guard officer.

I do not question the propriety of a reply, but I am concerned that similar responses do no credit to our fine Infantry School or its departments. They may serve to discourage contributions to our publication.

MARSHALL L. HELENA  
MAJ, Infantry  
Fort Leavenworth, Kansas

## REDUCING THE LOAD

Dear Sir,

The typical armored combat vehicle is grossly overloaded with rations, equipment, weapons, ammunition, and personnel. There is simply not enough room in any of our fighting vehicles to carry everything in the basic load, but where can we cut back?

We have already reduced the number of men in a rifle squad to keep the size of the infantry fighting vehicle (IFV) within reason, and consideration is being given to reducing the size of the tank crew from four to three and to limiting the height of tank crewmen. Further limitation here would be counterproductive.

Over the years the size and volume of small arms and ammunition have been reduced from .30 caliber to 7.62mm to 5.56mm, partly to reduce the space required for their transport. The equipment carried on our vehicles is carefully screened before it is approved for production, so this does not appear to offer a lucrative way of saving.

This leaves rations. An infantry squad of 10 men requires a three-day supply of ready-to-eat meals (MRE), or 90 per vehicle. The MRE is the new soft package "C rations." Each meal measures 82 cubic inches, or 51.25 cubic feet per three-day load.

If the long-range patrol food packet (LRRP) ration could be substituted at a volume of 70.6 cubic inches each (or a total volume of 44.13 cubic feet), a saving of 7.12 cubic feet could be

realized. But, unfortunately, the water required to reconstitute these rations would more than take up the volume saved.

An alternative could be the new Assault/Emergency Food Packet now under development for the U.S. Marine Corps. This packet requires only 38 cubic inches per meal, or 23.75 cubic feet for 90 meals — a saving of 27.5 cubic feet or a reduction of 53.4 percent.

This packet is not intended to be used for sustained feeding and would not replace the MRE or "A" rations for the regular daily feeding of troops. However, the three-day ration reserve that is carried on board a fighting vehicle is to be consumed only when the regular supply of food is interrupted.

The substitution of assault packets for MREs would result in a space saving without materially reducing the combat capabilities of the squad. The space saved could be of critical importance to IFVs, tanks, and scout vehicles.

ALFRED T. BOWEN  
Leavenworth, Kansas

## BTMS AND THE NCO

Dear Sir,

I recently attended an interesting three-day course on the Army's new Battalion Training Management System (BTMS). (See also, "BTMS," *INFANTRY*, January-February 1981, page 43.) The course gave the battalion staff and subordinate commanders an opportunity to probe and develop an understanding of how the battalion commander operates.

His philosophy, goals, and priorities were clearly stated during the three days, and it was amazing how many key people were not aware of where the boss stood on key issues. If nothing else, the course was a success for clearing up this problem; the Army has needed a training program like this for a long time.

During the course, the training program was discussed in minute de-

tail, with the subject of individual training and the responsibility for that training the major topic. It was the opinion of the command that the junior NCOs (SGTs/SP5s and SSGs) were responsible for providing this training as first-line supervisors. But no one had faith in the ability of the junior NCOs to present instruction to their subordinates.

I asked, "What ever happened to assigning a topic to an NCO, having him study the material and rehearse with the platoon leader and then present the period of instruction?" The answer from the unit command sergeant major was, "They just do not know enough to teach others."

This thought has permeated the Army in recent years. The officers are afraid the NCOs are going to goof things up, and the officers do not have time to go back and straighten things out. The net result is that the junior NCOs are not getting the experience they need. This means that future senior NCOs are going to have a weak foundation of experience to draw on.

The trainers in the Army have always been NCOs, and it concerns me that we are not effectively using the junior NCOs in today's Army. It may be the old soldier coming out in me, but the NCO corps is the backbone of the Army, and we need to exercise this element and keep it well trained.

BTMS starts the unit on the road to using its junior leaders properly, but it takes the full support of the chain of command to make it a reality. I say, assign classes to your junior NCOs, see that they rehearse, and above all allow them to use some initiative.

JAY L. WARNICK  
Major, Infantry  
Fort Bragg, North Carolina

## ARMORED REFUELING VEHICLE

Dear Sir,

During the development of the XM1 Abrams tank and the XM2 IFV (Infantry Fighting Vehicle), supreme emphasis was placed on matching the



abilities of these two vehicles as closely as possible. It was quite obvious to military equipment designers that if the IFV could not keep up with the XM1 in speed, agility, and range, then it would not be able to adequately support the tank. In conjunction with this concept of interoperability, we have the requirement to fix and fuel these vehicles as far forward as possible. For this reason, I believe an armored refueling vehicle should be developed.

The current TOE refueling vehicle for a mechanized infantry battalion is the 5-ton truck with fuel pods. Certain physical limitations of the truck are apparent at first glance. It is a wheeled vehicle with no armor protection. This means that it cannot venture too far forward without becoming extremely vulnerable, and its mobility is poor in terrain that is suited to track laying vehicles.

Another problem is that from the air a fuel truck *looks* like a fuel truck. This makes it an excellent target of opportunity for aircraft. If a pilot were given a choice of engaging a lone 5-ton fuel truck laboring down the highway or a hardened target such as an IFV/APC, I think he would have difficulty controlling his enthusiasm for engaging the truck.

I am not suggesting that the 5-ton fuel truck be scrapped; in fact, it is needed as the prime mover of fuel from the brigade trains to the combat trains. What is needed is a refueling vehicle that can match the abilities of the combat vehicles.

I see the new vehicle as being a slightly modified IFV, which would bring fuel from the 5-ton truck in the well-camouflaged trains area to the combat vehicles in their defensive positions on or near the FEBA.

The main advantages of an IFV refueling vehicle would be its armor protection and its 25mm Bushmaster cannon. The armor would protect the vehicle from small arms fire and artillery shrapnel, which would be especially important if it should run across an unfriendly patrol or if it should be spotted by an airborne forward observer. The 25mm Bushmaster would

be able to defend it to a limited degree from any hostile aircraft and from other armored vehicles.

The vehicle's priority as a target would not increase because it would not be discernible from a normal troop-carrying IFV. This would be critical in a European mid- to high-intensity environment where logistical installations and their vehicles would be at a premium as targets.

Finally, as a combat vehicle in a support role it would also have the advantage of adding to the combat power of the unit. This capability could be used in the offense, the defense, or in a protective role at the combat trains.

No longer would the 5-ton truck be required to shuttle fuel around the battlefield or be spotted by the XO to establish fuel lines, both of which are dangerous tactical maneuvers. Instead, it would be spotted only in the trains where camouflage, cover, and concealment could be maintained to a higher degree. Obviously, the fewer vehicles we have moving around and the more we have under cover, the harder they will be to detect and engage.

The disadvantages of the current system cannot be overlooked. An armored refueling vehicle has been needed for a long time — not only to protect the 5-ton fuel tanker but to protect the combat vehicles that it services. We must always stress interoperability of Army systems so that they complement rather than detract from each other.

SSG KELLY GALVIN  
Los Alamitos, California

#### RED BERETS AND JUMP BOOTS

Dear Sir,

As a former private first class in the 82d Airborne Division (vintage 1946-1948), I was very glad to hear that the red beret is back.

In 1947 some chairborne idiot decided we could no longer wear the Airborne tab as part of the shoulder patch. Take my word for it — that did

more to lower the morale of the troopers than all of the KP, cancelled weekend passes, and other duties combined.

Regarding the new combat boot, we were issued "rough out" leather combat boots with buckles, which were great when parachute lines tangled with them. To compound the situation, we had to shine them! We, of course, bought our own jump boots, which we were proud to spend many hours shining.

As one reader has suggested, continue to issue one pair of smooth leather combat boots for the dress greens and let the Airborne people continue to wear jump boots (which I'll bet they are still having to buy).

A.L. BROWN  
Edmonds, Washington

#### DECOY SIGNATURES

Dear Sir,

The following is offered in hopes of improving the Army's tactical employment of the TOW and Dragon antitank missiles.

These missiles have blast signatures that may lead observant enemy gunners to bring suppressive fires on the missile crews while the round is still being tracked. The Warsaw Pact forces' suppressive fire is by platoon volley, and it can quickly and seriously diminish the antiarmor defenses of NATO forces.

Suppressive fire against the TOW or the Dragon is more effective than against some other missile systems because the gunner can be located precisely by the signature of the round. Tracking a round always requires a calm and steady hand, and it is difficult to remain calm and steady when under fire by a number of automatic weapons. To help alleviate this problem, it has been suggested that small demolition charges fired simultaneously with the missile would provide decoys that would dilute suppressive fires. False signatures would also make it difficult to determine a defense's strength.

My suggestion is simply to replace the demolition charges with an M203 and a special round that would produce a signature similar to that of a missile round. Using an M203 would eliminate the preparation time demolitions require, and the task of setting out decoys would be reduced to a careful selection of position and a check for engageability with the M203. This approach would not require the gun crews to have extensive demolition training, and an M203 would also add to the security of the weapon system.

One possible drawback would be that a special round of ammunition might be required. Because decoy signatures would often need to be placed close to friendly positions, the HE round with its high concussion and fragmentation would not be suitable. I believe it is feasible to develop an M203 round safe enough to work both in combat and in training.

This decoy approach might also have the liability of serving to notify enemy suppressive gunners that a missile has been fired, when a single signature might escape observation. Accordingly, decoys should not be used when surprise is desired but only when enemy gunners are alert and spotting blast signatures.

If it comes to a slugging match between armored offensive forces and defensive antitank missiles, decoy

signatures could prove to be the key to deceiving the enemy as to the strength of the defense and its ability to avoid the attrition of its antitank strength while maintaining accurate fires.

CHARLES T. SIMPSON  
2LT, Infantry

#### SAN DIEGO GUARD

Dear Sir,

The 3d Battalion of the 185th Armored, a unit of the 40th Infantry Division, California National Guard, is seeking information pertaining to the history of this regiment.

On 12 October 1981, we will complete a century of service to our community, state, and country.

Originally termed the San Diego City Guard, the unit has been called to service in the Spanish American War, on the Mexican Border in 1916, in World Wars I and II, and in the Korean conflict.

Since 1881 this battalion has been variously designated: B Company, 7th Infantry (1885); 7th California Volunteer Infantry (1898); 2d Battalion, 160th Infantry, 40th Division (1917); 2d Battalion, 185th Infantry, 40th Infantry Division (1927); 3d Battalion, 223d Infantry (1946); and 140th

Tank Battalion (140th AAA Battalion) (1949).

Please write to me at 7501 Mesa College Drive, San Diego, CA 92111, or call me at home (714-445-9202) or call SSG Jim Lambdin at the armory (277-5226).

SSG LYLE McLEOD

#### REMOTED GUNNERS

Dear Sir,

From my vantage point the only feature we need to give our TOWs and Dragons is the ability to have a remotod gunner. I don't know if this idea will help the Dragon, but I believe it can be incorporated on the TOW.

The idea is to use a small laser and microprocessor, which would give the gunner the ability to stand off or be remote. The laser and microprocessor, in the base firing unit of the TOW, would calculate the distance and angle of deflection, thereby allowing the gunner to direct the missile just as he does now except that the microprocessor would calculate the change.

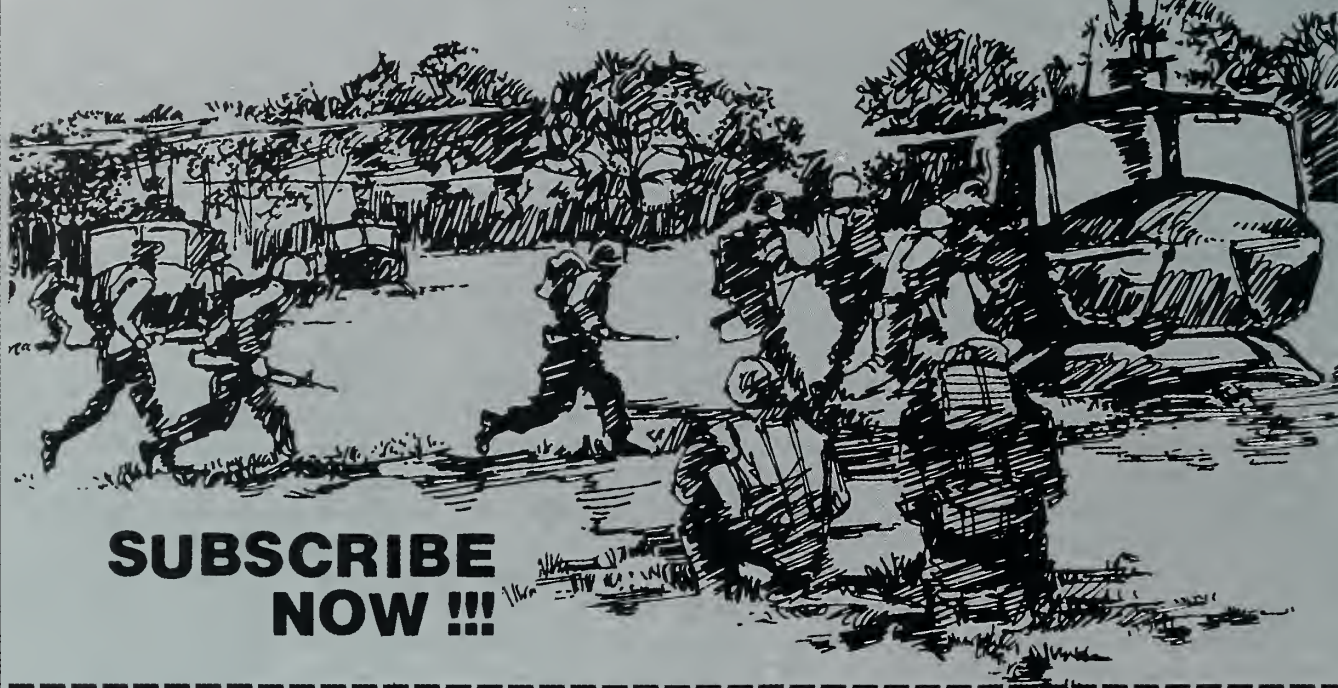
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# From The Editor

One way you can keep in touch with the United States Army Infantry School is through the pages of INFANTRY magazine — either by a personal subscription or by reading the copies sent to Infantry units around the world. Each time you change assignments, please make sure that your new unit is receiving its copies. If it is not, let us know so we can place it on our distribution list. And please don't forget to send us a change of address if you have a personal subscription.

A second way to keep in touch is through the literature produced by the Infantry School and distributed by the Extension Training Management/Support Division of the Directorate of Training. The Directorate publishes the Infantry School Instructional Materials Catalog, which is available upon request. Interested parties should write to the Commandant, USAIS, ATTN: ATSH-DOT-ETMSD, Fort Benning, Georgia 31905, or call AUTOVON 835-1823/2141 or commercial (404) 545-1823/2141 for a copy.

The catalog contains a listing of all the instructional material available from the Infantry School. Along with a listing of USAR instructor sets, the material includes special and programmed texts on a variety of military subjects. It also includes a description of the material and how to go about ordering it.

To update the catalog, the Directorate prepares a supplemental monthly list of instructional material, called DOUGHBOY, and sends it to the units on its mailing list. If your unit is not receiving the update, ask to be added.

If Infantry Correspondence Courses are needed, they are available from the Army Institute of Professional Development at the U.S. Army Training Support Center, Newport News, Virginia 23628.

To provide around-the-clock contact with the field, the Infantry School maintains two hot lines for military callers. The number to call with general questions and comments is AUTOVON 835-4487 or commercial (404) 545-4487, and the number for questions dealing with the Army Training and Evaluation Program is AUTOVON 835-4759 or commercial (404) 545-4759. If you feel that your question or comment is too lengthy for a telephone call, please write it out and send it to: Commandant, USAIS, ATTN: ATSH-SGS, Fort Benning, Georgia 31905. It will be given to the proper agency for an answer.

E.C.S

OUTSIDE BACK COVER:

Infantry Machinegun Crew, 1943, by Jes W. Schlaikjer.  
(Courtesy, U.S. Army Center of Military History)





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# Infantry

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A Department of the Army Publication

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The ultimate goal of any airborne assault is to deliver and assemble rapidly in the objective area every available bit of combat power.



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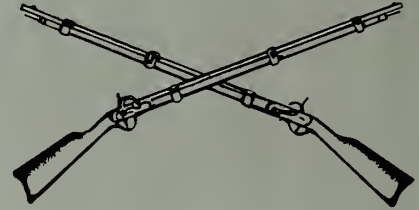
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# Commandant's NOTE



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**MAJOR GENERAL DAVID E. GRANGE JR.**

---

## TRAINING FOR BREAKOUT OPERATIONS

The air-land battlefield of the 1980s and 1990s is almost certain to be characterized by the wide dispersion and great mobility of the opposing forces, by devastating firepower, and by all kinds of highly sophisticated and technologically advanced equipment.

We know that the Threat forces either have formed or are forming units and are devising tactics to improve their chances of success on those battlefields. They have created massive ground armies that are highly mobile and fully supported; they have improved their already sizable airborne/special forces capabilities; and they have built a large helicopter fleet that gives them a dynamic airmobile capability. They have fully integrated their air and land forces so that they can conduct powerful, lightning strikes against any opposing forces.

In the face of this massive Threat military machine, our combat commanders must face the real probability that their units will be bypassed and cut off more frequently than in past conflicts. These encircled units may have to stay in place and fight until they are relieved by reinforcing units, or they may be expected to fight their way out (break out) in order to serve another day.

Accordingly, we must train our commanders at all levels to conduct breakout operations so that they and their men can become accustomed to finding themselves in isolated and encircled positions and become confident that they can carry out this difficult combat operation. One way of preparing our commanders is to incorporate breakout operational requirements in our field exercises and map maneuvers

whenever possible. This is important for both the units and the staffs.

Although there may be times when a commander will consider encirclement an acceptable risk to take, normally it will be an unforeseen event that will not only restrict the freedom of action of the force involved but may actually jeopardize the continuity of an entire operation. Therefore, those times when a commander will deliberately accept or permit his forces to be encircled should be considered the exception rather than the rule.

A unit may become isolated and encircled because of any of the following events:

- Enemy ground forces penetrate deeply into a defense area before the unit can move to other battle positions.
- Enemy electronic jamming prevents a higher commander from knowing the exact location of the unit, thereby preventing its timely displacement.
- The enemy's use of NBC weapons either destroys or contaminates areas, thereby denying or blocking the unit's planned routes of displacement and communication.
- Enemy airborne or airmobile forces land behind the unit's positions and seize, destroy, or sever the unit's vital lines of communication.

When a commander determines that one of his units has been encircled or isolated, he must focus his immediate attention on the two functions that are essential to the preservation of that unit — communication and fire support.

If communication with the isolated force has been broken, the commander must try to re-establish contact with it.

This may involve taking the following actions:

- Trying to reach the unit on an alternate, subordinate, or support frequency.
- Using helicopters to regain contact.
- Directing subordinate elements to attempt to link up with or make contact with the isolated unit.
- Notifying higher headquarters and asking for additional support if necessary.

If communications have not been broken, or if they can be re-established, he must find out from the commander of the encircled force information on the enemy situation, the support that is immediately required by the encircled unit, the status of the encircled force's personnel and equipment, the possibility that the encircled force can break out, and its ability to hold out pending relief by outside forces.

Fire support in various forms should be available to assist the isolated unit. For instance, the unit may be within range of supporting artillery; if not, tactical air support or attack helicopters might be used to provide the amount of firepower necessary to enable the encircled force to beat back enemy attacks or to enable other units to link up with it.

Most certainly, fire control/coordination lines and/or corridors will be vital to the successful maneuvering of the breakout force.

While these critical functions are being worked out, the commander of the isolated force must take the following steps to preserve his force:

- Try to make contact with other forces on various radio nets or by the use of patrols.
- Set up a tight perimeter defense and continue to strengthen his positions.
- Determine the strength and vulnerabilities of the enemy force.
- Determine the status of his personnel, equipment, and supplies. Evacuation of wounded and disposition of disabled equipment pose some unique problems for the commander.
- Redistribute critical assets such as POL, ammunition, and medical supplies.
- Plan the breakout operation.

Once the decision is made to break out, the commander of the encircled force must immediately begin the detailed





planning for the operation. Usually, he will organize his unit into four distinct tactical elements: the penetration force, the diversionary force, the security force, and the reserve.

The penetration force may vary in size from one-third to two-thirds of the total force and will be given the mission of breaking through the enemy lines and of widening and holding the shoulders of the gap until all of the other forces can move through.

The diversionary force will try to deceive the enemy by conducting a feint, a diversionary attack, or a demonstration. Regardless of which one is used, it must be carefully planned and timed, and it should be vigorously executed to divert the enemy's attention from the main attack's breakout point. Mobile weapon systems and tanks are ideally suited for the diversionary force. After it has accomplished its mission, the diversionary force should move rapidly to support the main attack.

The security force should cover the withdrawal of the other forces from the defensive perimeter and then withdraw on order after all of the other units have cleared the perimeter. After passing through the penetration, the separate detachments of the security force should rejoin their parent units.

The reserve force either assists the penetration force or executes counterattacks. It should be used when possible to maintain the momentum of the attack once the enemy's lines have been penetrated. When freedom of action has been gained, either the reserve or the diversionary force could be designated the lead element for further movement.

The commander's planning for the breakout follows the time-tested troop-leading procedures and preparation that are used for a deliberate attack. Many issues must be addressed, including:

- The most opportune moment to launch the breakout attempt.
- The location of the penetration.
- The enemy's weaknesses and how they might best be exploited.
- The most favorable route to follow to link up with friendly units.
- The destruction of any nonessential equipment and supplies.
- The recognition signals to be used when linking up with friendly forces.
- The setting up of fire control/coordinating lines.

Since secrecy and security should be of primary concern in a breakout operation, a strict sequence of events for the operation must be planned, developed, and given to all of the units. The units on the perimeter that will become a part of either the penetration force, the diversionary force, or the reserve must be released from their defensive missions and assembled with their respective tactical force at the latest practicable time before the main attack begins.

The main attack should begin as soon as it has been

determined that the diversionary force has properly distracted the enemy. Supported by all of the available fire support, the penetration force should break into the enemy's lines, widen the gap, and hold the shoulders of the gap until the reserve and diversionary forces pass through to continue the attack to an assigned objective. The supporting units should displace on order to provide close, continuous support to the attacking echelon. The security force should be the last to pass through the gap. When it has, the penetration force should prepare to fight a rear guard action.

Once outside of the encircled area, the unit should continue to attack until linkup with other friendly units. During this phase of the operation, the unit should assume a formation that will allow it to move as quickly as possible and, at the same time, afford it security to its front, flanks, and rear.

Under some instances, an isolated unit may find it necessary to break out by using exfiltration techniques in which small groups of personnel capitalize on stealth, reduced visibility, and surprise to return to friendly lines. This method should be used only when there is no other way out, because it usually requires the destruction of major weapon systems and the bulk of the unit's supplies to keep them from falling into the enemy's hands. However, it should be practiced — it is great adventure-type training for squads, platoons, and companies, and certainly develops a small unit leader's resourcefulness.

I have not discussed the intangible factors of morale, discipline, and leadership, but they are very much a part of any successful breakout operation. Military history records numerous times when encircled and isolated units fought their way out while transporting their dead and wounded, and most of their equipment. We can match that kind of performance by providing the training that builds the confidence that leads to success and defeats the fear that is usually associated with battlefield isolation. It certainly beats having American soldiers languishing in enemy POW camps!

Many of the areas I have touched on here deserve further discussion and debate. The techniques for conducting breakout operations need further refinement. We must accept the idea that isolation and encirclement on future battlefields will happen. We must plan and train our Infantry soldiers and leaders for that possibility. Breakout operations must become an integral part of our field training and command post exercises.

To keep this subject in the minds of our troop leaders, we have added the task of breakout operations to ARTEP 71-2. It is merely a "training skeleton" that needs "fleshing out" by Infantry leaders. Its inclusion is important for successful operations on the integrated and extended battlefield of the coming decades. It also creates a challenge where original and audacious action by subordinate leaders is required. Try it on your next trip to the field — you will find it extremely interesting and worthwhile training.

# INFANTRY NEWS



THE ARMY'S TRAINING SUPPORT CENTER at Fort Eustis is starting a new publication that will be aimed at helping to train the Army's trainers. A quarterly publication called THE ARMY TRAINER, it will be directed at those soldiers from sergeant to captain who are involved in training and at training developers.

The magazine's goals are to improve training and combat readiness; publicize new training ideas, techniques, and products; translate training policy into action; stimulate interest in the training system; and create a medium for the exchange of information and ideas. The first issue is expected to be distributed in August 1981.

The new magazine's editorial staff is eager to receive articles that deal with unit and collective training, with new training methods and devices, and with trainers. Articles or requests for additional information can be sent to:

Editor, THE ARMY TRAINER  
U.S. Army Training Support  
Center

ATTN: ATIC-AET

Fort Eustis, Virginia 23604

The telephone number is AUTOVON 927-4587/4605, or commercial (804) 878-4587-4605.

A NEW CORPS HEADQUARTERS — the I (First) Corps headquarters — will be formed at Fort Lewis early in 1982. It will command Fort Lewis, the 9th Infantry Division, and all other Forces Command units at the post. It will also supervise the training of at least two other combat divisions in the United States, and will conduct planning to support the 8th U.S. Army in Korea and the

Army's Western Command in Hawaii.

The new headquarters will include an active component headquarters company, and corps support units provided initially by the Army Reserve and the Army National Guard.

The designation, I Corps, was previously used by a combined U.S. and Korean Army headquarters in Korea. But in March 1980 the name of that unit was changed to Combined Field Army and the I Corps designation was retired. The new I Corps headquarters at Fort Lewis will use the flag and historical memorabilia of the old I Corps.

A RECENT FIRE AT the Philippine Military Academy destroyed more than 14,000 volumes, including English-language books, magazines, and other resource materials.

The U.S. Army's Western Command (WESTCOM) has offered to assist the efforts that are now under way to restore the library's materials by making the Academy's need known in the United States.

Accordingly, WESTCOM is asking for donations of books, magazines, corporate and institutional publications, or any English-language materials that might be of interest to college-level professional military students.

Donations should be sent directly to the Chief, JUSMAG-Phil, ATTN: Ground Forces Service Section, APO San Francisco 96528. Additional information on this project is available from LTC Karl Piotrowski, DCSOPS, HQS WESTCOM, Fort Shafter, Hawaii 96858; he can be reached by telephone at (808) 438-1821/2905.

UNITS REQUIRING GENERATOR POWER are constantly searching for effective ways to keep their equipment operational.

At the present time, the operation of the generator is the additional responsibility of any soldier, regardless of his MOS, who is designated by his unit commander; its organizational maintenance is the responsibility of a soldier with MOS 63B; and its support maintenance is the responsibility of a soldier with MOS 52D.

Direct and general support maintenance is taught in the 52D10 course at Fort Belvoir. The organizational maintenance of generators is taught in the 63B10 course, which is conducted at three training centers — Forts Dix, Jackson, and Leonard Wood.

As the proponent for MOS 63B, the Ordnance Center and School has recently revised the 63B10 course as part of its continuing effort to improve generator maintenance. All MOS 63B10 soldiers who graduate from the revised course will have been taught additional skills and will have the knowledge to perform power generator equipment maintenance tasks. Their training also includes performing such maintenance tasks as troubleshooting the 5kW diesel and gasoline generators and the 60kW generator.

In addition, the soldiers will have been taught to perform some automotive-type tasks on both vehicles and generators. For example; they will be able to perform maintenance tasks on the cooling system of wheeled vehicles and also to replace the water pump, cooling fan, and fan belts on the 60kW generator. In the course, they use test equipment to troubleshoot vehicle and generator electrical systems, and are taught the



field application of generator sets, generator set selection, and installation and paralleling of the 60kW generator. The soldiers are also required to perform scheduled preventive maintenance checks and services on the 5kW gasoline and diesel engines and the 60kW generator sets.

An eight-hour end-of-course performance test is used to evaluate how well the soldiers have learned their generator maintenance tasks.

Commanders should realize that the generator training given to a soldier with MOS 63B10 is maintenance training and not operator training. While the duties of a soldier with MOS 63B10 includes the performance of organizational maintenance on power generators, they do not include the duties of a generator operator. Of course, a soldier with that MOS must be able to operate a generator if he is going to do the necessary maintenance tasks. Accordingly, some generator operation is taught in the 63B10 course.

Generator operators, though, must be trained by the unit. A unit commander should use those soldiers with the MOS 63B to assist in training operators to perform organizational generator maintenance. But operator training itself should include all aspects of generator operation, including operator maintenance. The following TEC lessons can help a commander in this particular training effort:

- 1-662-051-7601A Location and Installation of GED Generator Set
- 1-662-051-7602F Servicing of GED Generator Set, Part I
- 1-662-051-7603F Servicing of GED Generator Set, Part II
- 1-662-051-7604F Servicing of GED Generator Set, Part III
- 1-662-051-7605E Servicing of GED Generator Set, Part IV

- 1-662-051-7606F Preparing the GED Generator Set for Starting
- 1-662-051-7607F Preparing the GED Generator Set for Starting and Stopping
- 1-662-051-7608F Preparing the GED Generator Set for Load
- 1-662-051-7609A Tech Tables for Servicing and Troubleshooting the GED Generator
- 1-662-051-7610E Operation of GED Generator Set
- 1-662-051-7611F Temporary Expedite Repair for Cables
- 1-662-051-7612A Computing Load and Selecting Appropriate Generator
- 1-662-051-7613A Balancing Load and Drawing Distribution System
- 1-662-051-7614A Selecting Proper Line Cable

These TEC lessons should be available at battalion learning centers or at audio-visual centers. If they are not, they can be obtained by writing to the Commander, U.S. Army Training Support Center, ATTN: ATIC-AET-TP, Fort Eustis, Virginia 23604.

As can be seen by the above, the Ordnance Center & School is placing more emphasis on providing soldiers who have the MOS 63B10 with theory pertaining to generators and electricity, on teaching them more maintenance tasks on fewer models of generators, and on providing them the opportunity to perform maintenance tasks on both automotive vehicles and generators.

The unit commander remains the key to insuring that his operators are trained through supervised on-the-job training programs. He should select high quality soldiers to receive that training and then must insure that they are available to monitor the equipment during operational

periods. (This item was prepared by the Ordnance Center and School.)

THE OFFICER CANDIDATE SCHOOL (OCS) Commemoration Day will be held 26 September 1981 at Fort Benning. The day's activities will include an open house in the OCS area and the OCS Hall of Fame. A formal dinner will end the day's activities.

The OCS Commemoration Day is held each year to honor the 117,000 OCS graduates who have served their country as commissioned officers and as civilian leaders. This year's celebration also marks the 40th anniversary of the officer candidate program and will commemorate the graduation of the first OCS class in 1941. That class graduated 176 new second lieutenants.

The registration fee for this commemoration day includes lunch and dinner on 26 September. It does not include hotel or motel reservations.

Additional information can be obtained from the Commander, 5th Student Battalion (OCS), ATTN: S3, TSB, Fort Benning, Georgia 31905. The telephone number is AUTO-VON 835-5460/3578, or commercial (404) 545-5460/3578.

THE EXPERT INFANTRYMAN BADGE (EIB) test has been fully integrated into the 1981 CMF 11 skill qualification test (SQT).

To earn the EIB, both officers and enlisted men must complete the following requirements:

- They must volunteer for EIB testing.
- They must be recommended by their unit commanders.
- They must qualify as expert with the M16 rifle or with their assigned weapon.
- They must complete a 12-mile foot march in three consecutive hours or less.
- They must pass the Army's physical readiness test with a minimum of 60 points in each event,

and with at least 225 points overall.

- They must complete a standard day and a standard night land navigation course.

- They must score GO on all stations of the hands-on component of the SQT for their MOS, and then successfully complete six EIB roundout tests.

Army Regulation 672-12, The Expert Infantryman Badge Test, has been revised to integrate the EIB and the SQT and has been distributed to the field. It outlines the test requirements and refers the soldiers who want to take the EIB test to the Manual of Administration of the Hands-On Component of SQT for specific instructions.

The integration of the EIB and SQT means that there will be more EIB tests offered and it should certainly ease the administrative burden of those units that have had to give two separate tests. Too, the inclusion of the roundout tests in the SQT notice and in the manual of administration gives a soldier a good chance to prepare for the EIB as well as for the SQT.

THE 1981 CMF II SKILL LEVEL 1 SQT will be scored locally beginning 1 June 1981 and will be supervised by local training standards officers (TSO, formerly known as TCO). The manual scoring process will be as follows:

- A soldier will complete the SQT.
- Instructions for manual scoring and scoring products will be distributed to unit trainers.
- Unit trainers will score the skill component using a plastic scoring template, and will then record the soldier's performance in a job book insert.
- The SQT results will be forwarded to the Army's Training Support Center where the Individual Soldier's Report (ISR) will be prepared.

Local scoring, of course, will give a local commander immediate feedback on his soldiers' progress, and

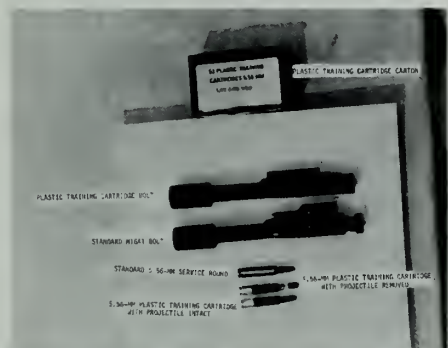
should give him a firm base on which to build his training program.

THE FOLLOWING NEWS ITEMS were submitted by the Infantry Board:

- **Plastic Training Cartridges.** For a number of years some foreign armies have been using plastic-bulleted cartridges for training purposes. Recently, some commanders in U.S. Army, Europe, asked for similar cartridges to use in such training exercises as combat operations, military operations in urban terrain, reduced scale range marksmanship, mechanized infantry and tank crew firing, and defense against aircraft.

As a result, the Army's Test and Evaluation Command is conducting a technical feasibility test of a plastic training cartridge, and the Infantry Board recently conducted certain exercises with the 5.56mm Plastic Training Cartridge (PTC) in support of that testing.

The plastic cartridge is about the



same shape and size as the present 5.56mm service cartridge. The base and lower one-third of the case that encloses the primer cap is made of aluminum; the remainder of the case and the projectile are made of plastic. Its overall weight — cartridge and projectile — is about 49 grams.

The projectile's muzzle velocity is some 4,000 feet per second, but because of its light weight its velocity falls off rapidly, and it has a short range compared to a service projectile.

A special PTC bolt is required to cycle the M16A1 rifle. The PTC bolt,

which does not have a bolt carrier key group, is permanently locked into the bolt carrier and operates on a blow-back principle. The standard M16A1 bolt is gas operated.

During the Board's testing program, trained riflemen fired the 5.56mm PTC from M16A1 rifles that were equipped with PTC bolts. They fired only in the semiautomatic mode. After zeroing their rifles at 25 meters with the test cartridges, the riflemen fired 10-round shot groups at ranges of 5, 10, and 15 meters against F-type pasteboard targets, and at ranges of 20 and 25 meters against E-type pasteboard targets. Then they fired the same exercises against polyethylene targets.

The rest of their firing was done at 25 meters against E-type targets, both pasteboard and polyethylene. The performance of the PTC with respect to marking the targets and activating the target holding mechanisms was evaluated.

A summary of the Board's test results was sent to TECOM. Some of the comments and suggestions resulting from the test observations were that the PTC bolt should be red, blue, or some color different from the standard bolt to lessen the chances of training accidents; that the metallic base of the PTC should be another color because the polished aluminum gave the illusion of the rifle's chamber being cleared when it was not; and that the targets had to be replaced more often because the PTC projectile made larger holes in the targets than the regular service ball projectiles.

Sergeant First Class William L. Caughey, Small Arms Test Division, was the test manager.

- **Chemical Defense Training System.** A low-cost, nonhazardous system that can be used to train individual soldiers and units to survive in a chemical warfare environment is badly needed, and the Army has begun a multiphased program to obtain equipment that will do the job.

During Phase I, the United Kingdom's M9 simulator, projectile, airburst, liquid (SPAL) was tested and



type classified to serve as an interim item until the improved U.S. system — the Training System for Chemical Defense, Phase II (TSCD-II) — could be fielded.

The TSCD-II is designed to simulate both persistent and nonpersistent chemical agents. The persistent agent is disseminated by a launcher that



fires the SPAL in volleys of five at a time. The SPAL bursts in the air at about 25 meters above the ground and produces a cloud that adheres to the clothing and equipment of the personnel at whom it is fired.

The Board evaluated the TSCD-II for use by unit personnel to support realistic chemical defense training. After training on the use and maintenance of the system, the test soldiers took part in field exercises that involved infantry squads and platoons that were conducting offensive operations.

The Army's Chemical School will use the test results to support a type classification decision.

Captain John D. Cheek, Field Equipment Test Division, was the test manager.

• **Prototype Quadrant Sight Assembly.** The Army's Research and Development Command (ARRADCOM) is working on design improvements that will eliminate or at least reduce the breakage of some of the components of the M203 grenade launcher's quadrant sight assembly during field use. The command has

come up with a prototype sight assembly whose configuration, mounting, and operation are the same as those of the current standard sight assembly. But the new assembly's range quadrant consists of a nylon bracket and an aluminum range quadrant scale instead of the standard nylon range quadrant, while its nylon latch design has been altered to include a steel pin.

The Board was tasked to test the prototype sight assembly.

To make a comparative analysis, 60 of the test and 60 of the standard sight assemblies were put on M203 grenade launchers that were attached to M16A1 rifles, and these were issued to soldiers who were undergoing both basic and advanced infantry training.

The test soldiers used the weapons for two months during M203 grenade launcher training, firing exercises, and other field exercises. The sight assemblies were subjected to the effects of firing, rough handling, soldier maintenance, and the weather conditions that prevailed during the testing period. Two of the test and two of the standard sights with weapons were carried by parachutists during several jumps.

ARRADCOM will use the test results to determine the suitability of the prototype assembly as a replacement for the current standard sight.

Sergeant First Class Harlan Selle, Junior, Small Arms Test Division, was the test manager.

**THE FOLLOWING THREAT TIDBITS** have been submitted by the DCD Threat Branch, USAIS:

• **AK74 Assault Rifle.** The current basic infantry weapon of the Soviet Army is the 5.45mm AK74 assault rifle. The weapon first appeared in 1974. It supersedes the 7.62mm AK47



and AKM assault rifles.

The AK74 has a combat range of about 450-500 meters and can be fired in either the semiautomatic or au-

tomatic mode. It has a new type of muzzle brake that substantially reduces its recoil, muzzle jump, and back blast. A composite plastic-metal magazine that holds some 30-40 rounds of ammunition is used with the rifle.

The Soviets have attempted to make the magazine "GI proof" — it is a bright orange color and will not fit other weapons. The 5.45mm round itself has a hollow-point bullet that is designed to tumble when it hits a target and this causes it to move in a random fashion away from the entrance wound. It has been used in Afghanistan where the Afghan tribesmen call it the "poison bullet" because of the damage it causes.

• **BTR-60PB amphibious armored personnel carrier.** This vehicle first appeared in 1965 and has been exported to many countries, including most of the Warsaw Pact countries and North Korea. It is an eight-wheel drive vehicle that has a large space between its second and third sets of wheels, and it has a long boat-like hull with sloping armor on the sides and overhead cover.

A small conical turret is positioned over the second set of wheels and mounts both a 14.5mm and a 7.62mm machinegun. There are two semicircular hatches in front of the turret for the driver and the commander and two rectangular hatches behind the turret for mounting and dismounting up to eight soldiers. The positioning of the top hatches, of course, expose the soldiers to fire when they are either mounting or dismounting.

There are three firing ports on each side of the troop compartment.

The vehicle has two rear-mounted six-cylinder engines, and its tires have a centralized pressure regulation system that is common to Soviet wheeled armored personnel carriers. The vehicle is steered on land and in water by the front two sets of wheels. It swims well because of its boat-like hull and sloping sides.

The vehicle is the standard APC in many motorized rifle and Soviet naval infantry units (Prepared by SSG Jane Schultz.)



## TANK KILLERS:

### Infantry Resurgent



ROBERT C. SMITH

*EDITOR'S NOTE: This article is the fourth in a six-part series. The first part appeared in our January-February 1981 issue.*

The armed forces of most nations recognized during World War II that the hollow charge could be used to defeat armor. In fact, the German Army went so far as to develop charge munitions for virtually every weapon in its artillery inventory as well as a wide variety of hand and rifle grenades.

The United States had to buy the design of the hollow charge despite the fact that its original discoverer was an American, and almost immediately developed the M10 anti-tank grenade. But the grenade was too heavy to be thrown far by hand, and the Garand rifle was not capable of repeatedly firing the M10.

Fortunately, Yankee ingenuity was equal to the occasion, because a self-trained rocketeer, a sort of modern Goddard, developed not only a rock-

et booster for the M10 grenade but a tube-like launcher as well. The device was successfully tested at Aberdeen Proving Ground and immediately became the prototype of a new weapon — the 2.36-inch rocket launcher, better known as the bazooka. It was immediately rushed into battle in North Africa, where it proved to be quite effective against most of the enemy armored vehicles then in service. But already the seeds of the design's ultimate failure were sown.

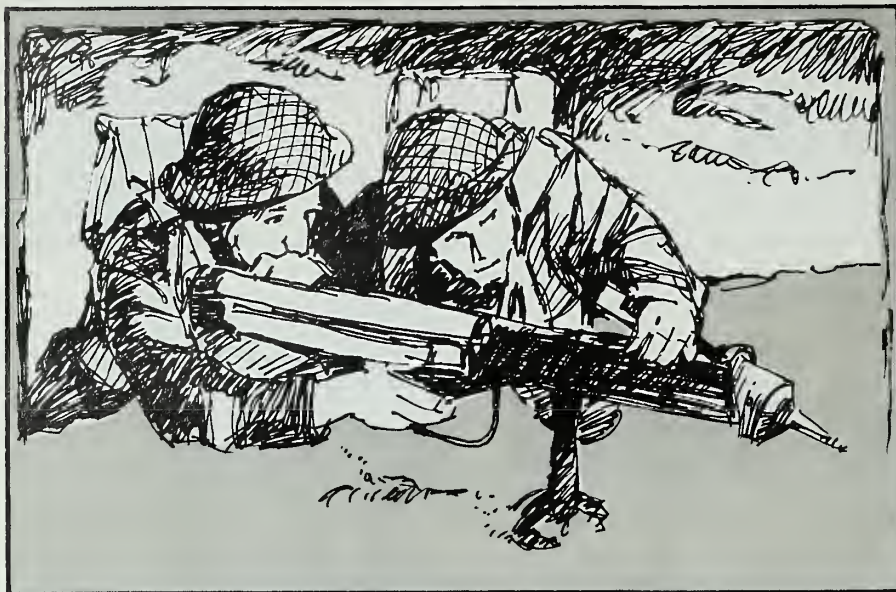
Unfortunately for the United States, one of the early batches of bazookas was supplied to the Soviet Army, which promptly lost them to the Germans. Although the simplicity of the weapon was intriguing to the Germans and its penetration quite satisfactory against the lighter vehicles found on the Eastern Front, the bazooka proved relatively ineffective against the largest and most heavily armored tanks, especially the KV-series of Soviet tanks and the Tiger

series of German tanks.

A German development team then apparently took its own considerable knowledge of hollow charges and the captured bazookas and combined them to produce its own version of the device, the *Raketenpanzerbuchse 43* (RP 43). This truly ingenious design produced an 88mm rocket that could penetrate armor more than 200mm thick at ranges up to just over 150 meters. Now, all of a sudden, the infantry had weapons that could perforate enemy tanks with ease.

While the development of the rocket launcher and hollow charge combination was being perfected for use in the field, another line of approach was being tested in England. This would lead to the introduction of the PIAT (Projector, Infantry, Antitank). The British had considerable expertise in such equipment, and since they had also developed many hollow charge grenades and bombs, it was natural they would attempt to develop an infantry weapon that em-





P.I.A.T. projector.

ployed both concepts.

The resulting weapon was clever but difficult to use. Spigot mortars and projectors have to be cocked before they can be fired, and the PIAT was no exception, although it did cock itself after the first round had been fired. Considerable gymnastics and a hernia-producing 200-pound effort was needed to cock the PIAT, a fact that made its close-in use against an enemy somewhat impractical. But it did have the advantage of being almost totally without muzzle blast, and it had absolutely no backblast to reveal its position.

It would be nice to report that the PIAT, after having demonstrated its value in the campaigns in Northern France and Germany, was retained in service, perhaps in a modified form. Unfortunately, the PIAT disappeared almost as rapidly as it appeared, and, to the best of my knowledge, the spigot principle for rocket launching disappeared with it.

### SIMILAR RESULTS

But infantrymen did finally have a weapon that could individually deal successfully with enemy tanks. In fact, it was the first time that this had been the case since the "K" bullet had been introduced on the Western Front during World War I. Various

tactics were evolved to make use of the weaponry, and, for the Americans and the Germans, the results were amazingly similar.

Both the American bazooka and the German RP43 had considerable muzzle-flash and violent backblast, which tended to make them weapons to be used only when a kill was certain, since a tank crew would almost certainly react vigorously to a botched attack. Further, neither weapon could be used safely or successfully in an enclosed space; the backblast could seriously injure the firer by overpressure and might even kill him.

Both sides, therefore, developed a series of stalking tactics that relied heavily on concealed positions and the careful selection of ambush sites. Now enemy tanks that attempted to penetrate friendly lines would have to choose their routes carefully indeed, or they would run the real risk of being successfully attacked by an infantryman who could knock out a \$30,000 tank with a rocket that cost a fraction as much.

Tactically, the introduction of the rocket launcher made possible a considerable alteration in antitank tactics. Before these weapons were introduced, antitank tactics, for the infantry at least, were concerned mainly with separating the enemy tanks from their infantry protection

and then knocking them out with anti-tank guns. In most cases, while the separation could be accomplished by artillery and even small arms, the infantry still had to bear the brunt of this effort without being able to seriously damage the enemy tanks, except by the most heroic of methods.

The introduction of the rocket launcher, however, gave the infantry the ability to blunt an enemy tank attack as soon as it came into range, roughly 100 to 150 meters, and could be used to channel the attack onto a killing ground where more conventional means could be used to eliminate the enemy vehicles.

The infantry, though, was not completely immune to counteraction. As was mentioned, the rocket gave off both a bright muzzle-flash and a considerable backblast, both of which could reveal its firing position to alert enemy gunners who could then immediately rake the area with fire. Since the leading tanks would tend to draw the initial fire, their supporting tanks could deal with the rocket launchers with their machine-guns.

The tankers also responded to the introduction of rocket launchers by adding side-skirts to protect their vehicles against hollow charge detonations by keeping them away from the hull and running gear. Most of the side-skirts in the German Army took

the form of solid but thin plates or wire mesh. Both the Americans and the Germans also used tank tracks draped over the hull and turret for protection; American tankmen also used large strap iron boxes welded onto the hull to hold sandbags for additional protection.

## SOLUTION

The German solution to the problem of hollow charge weapons seems to have been the best solution since it could be accomplished with little specialized material and didn't add the weight that sand added to the suspension system. The introduction of these protective measures set off yet another round of research to defeat enemy armor, especially among the Germans, and it was this research that formed the basis of many of today's antitank weapon designs.

American production was really moving along by this time, and the huge numbers of tanks that became available simply saturated the enemy's antitank efforts. It was assumed, though, that one of the best ways of dealing with enemy tanks was a friendly tank in the right place.

Because there were so many available tanks, the U.S. infantrymen became careless, and often abandoned their antitank weapons so they could

move faster. The fallacy of this practice was startlingly revealed when the Germans made their counterattack through the Ardennes. In general, though, U.S. antitank research came to a halt, while tank technology progressed. It is ironic to note that the U.S. Army's Ordnance Board had suggested that the bazooka be enlarged to 3.5-inch or 88mm.

The Germans, on the other hand, had never been satisfied with their antitank protection and had become, to a degree, obsessed with antitank defenses that would be available at all levels of their Army. An important reason for this was the drubbing their infantry had suffered by Soviet tanks. A variety of different measures were put into effect to counter the enemy's armor, including cutting the long-suffering antitank rifles down to accept antitank rifle grenades. Almost all the measures were considerably less effective than was desirable.

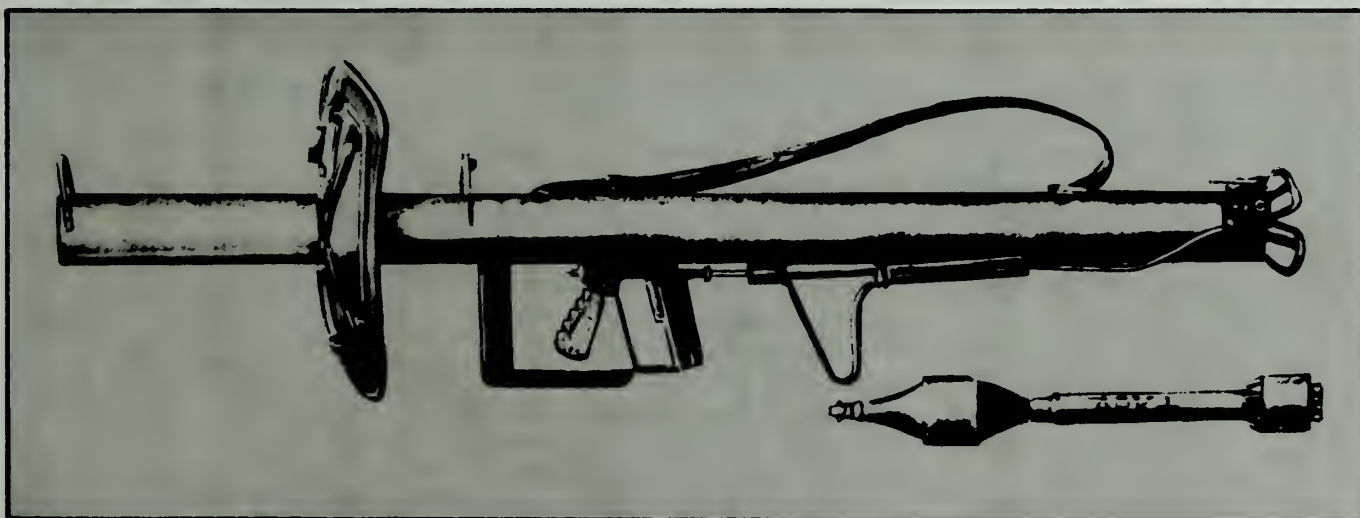
Almost simultaneously with the introduction of the conventional rocket launcher came the introduction of the only true, individual antitank weapon to be issued in World War II, the *Panzerfaust* (armor-devil). This weapon was designed for simplicity of manufacture, ease of use, and effectiveness, and it managed to meet all of these criteria. The weapon was also notoriously cranky to use, especially when it was subjected to dampness,

which was unavoidable in the front lines. Another problem was that its fuzes were a constant source of failure.

The *Panzerfaust* was quite popular with the German soldiers. It could defeat almost any known tank armor. Unfortunately, the first ones had a range of only 30 meters, barely enough to make it anything but a weapon of last resort. Despite the problems associated with the weapon, however, it was probably the most widely distributed antitank weapon of all time until the 1970s. There are few photographs of German infantrymen in the later war years that don't show some of them carrying it.

The *Panzerfaust* was the subject of almost continuous development even before it was formally fielded for use. Its most obvious shortcoming — range — was the first problem its designers tackled. The result was the *Panzerfaust* 60, which had a nominal range of 60 meters, although with luck and considerable skill it could be fired at somewhat longer ranges. The *Panzerfaust* 100 was a follow-on project. But because of production demands, especially having to do with its increased propellant, it was issued in considerably smaller numbers than the other two.

The later developments in the *Panzerfaust* series of weapons suffered



*Raketenpanzerbüchse* (German antitank rocket launcher).



from the usual problems of a developing weapon system, particularly that of increased sophistication in design, which meant that the weapon took more time to produce, became more complicated to operate, and was much more expensive in all ways. The first of these was the *Panzerfaust* 150. With a nominal range of 150 meters, this was an interesting weapon in that it used a redesigned warhead that saved explosives and lightened the rocket (thereby increasing its range) and was considerably altered in shape. It was much more conical and considerably longer, which allowed greater penetration of enemy tanks, even if those tanks were protected by skirting. The *Panzerfaust* 250 was the final product in this project.

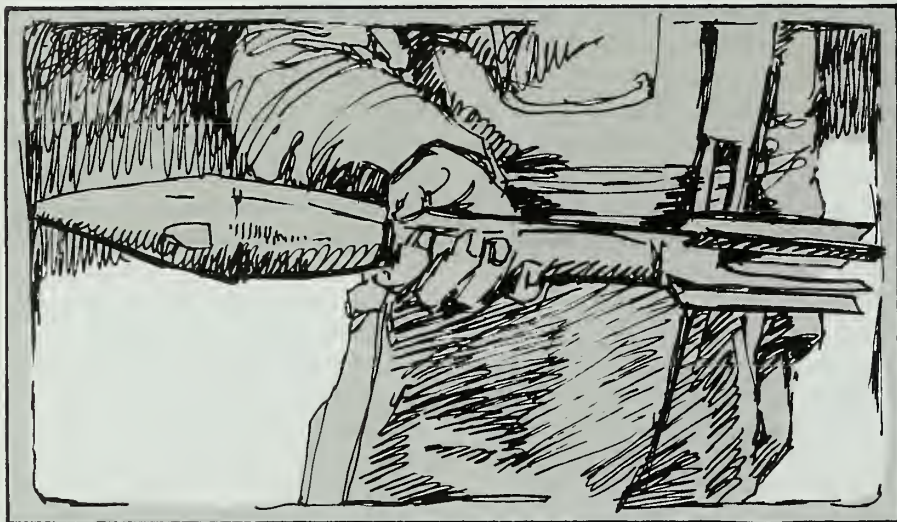
threat. They ranged from antiaircraft guns slung under the wings of *Stuka* divebombers all the way up to large caliber antitank guns mounted in suitable aircraft. The champion of these projects seems to have been a 365mm recoilless gun. Fortunately for the German test pilots, they never had to fly this monster because the war ended with the project in an advanced stage of development. Then, again, considering some of the weird projects that were being tested in Germany in 1945, they might not have been as shocked as might be supposed.

Besides these various flights of fancy, there were some hard and pragmatic experiments being done in Germany to give the infantryman a long-range guided missile that he

War I, the Western Allies largely dismantled their armed forces. In the U.S., the military services were caught in the familiar budget squeeze that seems to follow every war, and they were simply unable to produce any major weapon system that was not already under development during the war. The result was that weapons of World War II vintage would be seen in the U.S. Army for many years after 1945, long after they were obsolete. Part of the problem resulted from the fact that the U.S. was the only nation at that time with a nuclear weapon.

Other nations, especially in the West, were confronted with many of the same problems. Both France and England had been virtually eliminated as great powers, and the strain placed on their economies to convert from a wartime to a peacetime environment proved quite severe. The Soviet Union, after clamping down an iron curtain in Europe, began the immense task of rebuilding a largely devastated country, as well as modernizing its armed forces. The increasing paranoia of the Soviet leaders was reflected in their country's withdrawal from the community of nations.

Militarily, this was a period of the reconsolidation of colonial empires, especially the French in Indochina and the Dutch in Indonesia. Shortly, though, another major war broke out, one that simultaneously exposed antitank deficiencies and the sterility of the concept of using the nuclear, and later the hydrogen, bomb against tactical targets.



Bazooka projectile.

The *Panzerfaust* is still with us in the form of the Soviet RPG series of antitank rocket launchers, which are essentially refined descendants of the *Panzerfaust* 150 and 250. The West Germans also have one of these modernized weapons in their PzF44 rocket launcher.

By the middle of 1944, antitank weapon development had evolved into almost a fetish with the German engineers and with reason: everywhere, enemy armor was moving forward with increased effectiveness. The result was a variety of stop-gap devices to counter the

could use to destroy most enemy armored vehicles.

Fortunately for the Allies, most of these projects were terminated as soon as the war ended, although, wisely, the information and research data, as well as the prototypes, were seized and carried off by the various Allied armies to be mulled over and examined with an eye toward the future. The ultimate shape of world power was already being formed even as Germany and Japan collapsed under a hail of bombs and a flood of troops and tanks.

Just as they had done after World

**ROBERT C. SMITH** graduated from Rutgers University in 1970. Now living in New Jersey, he has long had an interest in military history and has been published in several military magazines. The material in this six-part series will be part of a book that will deal with the effect that technology has had on tactical and operational considerations.

# CONTINUING EDUCATION



CHESTER F. ALDERFER

Learning is a lifelong process, and it is not limited to the formal classroom. There are many soldiers who do not have any college credit on their records but who do have experience and training that can earn them credit and get them on their way toward earning degrees of various kinds.

The award of appropriate recognition for experience and training in military service is important to the service as well as to the individual. It provides an incentive for highly motivated individuals to enlist and stay in, and it improves readiness because it improves professionalism. When soldiers earn credit for what they already know, they avoid duplicating effort and expedite their completion of a program of study.

The effort to establish ways of granting credit for nontraditional learning experiences dates back to World War II, which interrupted the education of millions of soldiers. With these soldiers returning home, in 1945 the American Council on Education (ACE) established a commission, which issued the first recommendations for credit for service experience and training in 1946. The ACE, through what is called the Office on Educational Credit and Credentials, continues to provide these recommendations.

Originally, service school courses were the sole basis for such credit. Today, though, the three-volume *Guide to the Evaluation of Educa-*

*tional Experiences in the Armed Services*, commonly referred to as the *ACE Guide*, lists the credit that is recommended for several kinds of education and experience: service school courses, enlisted and warrant officer military occupational specialties (MOSs), and Defense Activity for Nontraditional Education Support (DANTES) Subject Standardized Tests.

Another publication, *The National Guide to Credit Recommendations for Noncollegiate Courses*, provides recommendations for courses conducted by business, industry, and Government agencies other than the armed services.

In addition, credit is available through the High School General Education Development Test (GED) and the College Level Examination Program (CLEP).

The Office on Educational Credit and Credentials evaluates each request from the various government, commercial, and private agencies that offer courses and makes a recommendation as to whether credit should be awarded for each of them, how much, and in what area. It is this recommendation that appears in the *ACE Guide*. Each school, business, or industrial activity is then free to accept or reject the credit as listed, to modify it, or to require additional institutional validation before awarding credit.

The office of the Adjutant General supervises the Army Continuing

Education System and coordinates with DANTES and with ACE. That office makes sure Army service school courses and MOS training are reevaluated periodically to keep all of the credit recommendations up to date.

DANTES contracts with ACE for the evaluation of all armed forces service school courses and MOS training and for the publication of the credit recommendations in the *ACE Guide*. DANTES is also responsible for contracts with several national academic testing sources and with several civilian certification agencies. These test programs are administered through the continuing education program on each installation.

These ACE Guide recommendations are stated in four categories of credit, expressed in semester hours: Vocational certificates, lower-division baccalaureate or associate degrees, upper-division baccalaureate degrees, or graduate degrees.

In deriving semester hour equivalents, the evaluators consider classroom contact time, out of class preparation, pre- and post-course assignments, prior work-related experience, the concentrated nature of the learning experience, and any reinforcement of the course materials that may be gained on the job.

Enlisted MOSs in electronics or electricity and mechanical maintenance have been evaluated and



applied toward advanced standing in an apprentice training program. Other apprenticeship related MOSs also have programs registered with the U.S Department of Labor. Although Infantry MOSs are not now directly related to an apprentice training program in civilian labor markets, infantry leadership experiences transfer in personnel management training programs.

Soldiers begin earning credit recommendations during their initial entry training. For those who have completed their basic military training since December 1979, the *ACE Guide* recommends that four semester hours of credit, distributed as follows, be given in the lower-division baccalaureate or associate degree category:

SUBJECT	SEMESTER HOURS
Outdoor skills practicum	1
Marksmanship	1
Personal health	1
Personal physical conditioning	1

The service school courses that have been evaluated are identified in the *ACE Guide* by course title, mili-

tary course number, location of the school, length of the course, start and end dates of the course, the objective of the course, a description of the instruction, a credit recommendation, the date the credit recommendation was established, and a cross reference to related MOS exhibits.

The enlisted MOSs that have been evaluated are identified in the *ACE Guide* by title, MOS designation, start and end dates of an exhibit, career management field, a summary description of MOS duties, credit recommendation by skill level, and the date of the evaluation. A summary of the current recommendations for 11-series infantry MOSs is shown in the accompanying chart.

The experience and training of infantry soldiers correspond most closely to the elements of an associate degree program in general education or, at Skill Levels 4 and 5, in management science. (Other options are available, but they will generally result in a smaller credit award.) In every case, the soldier must earn additional credits to satisfy the degree requirements, either by studying for and passing appropriate

subject matter tests or by completing off-duty resident courses at a college.

MISSION

Each local continuing education office has the mission of helping service members get full recognition for their experience and training. This includes counseling active duty personnel, assisting soldiers in documenting their experience and training, briefing personnel who are separating from the service, and establishing or administering programs with cooperating institutions that will make the most of each soldier's potential.

Educational programs vary slightly between posts, but the same basic opportunities and program elements are present at each. The problem is to bring the essential elements of a program together with the demands of a soldier's job and to maintain a continuity of effort during transfers between posts. It is important, therefore, for the soldier, assisted by Education Services personnel, to set some definite goals, taking into ac-

SUBJECT AREA	SKILL LEVEL			1			2			3			4			5
	MOS 11			B	C	H	B	C	H	B	C	H	B	C	H	B
Mechanical Maintenance				3V	3V	3V	3V	3V	3V	3V	3V	3V	3V	3V	3V	3V
Map Reading								3V			3V			3V		
								3L			3L			3L		
Surveying				3L	3L		3L	3L		3L	3L		3L	3L		3L
First Aid				1L	1L	1L	1L	1L	1L	1L	1L	1L	1L	1L	1L	1L
Field Experience in Management							3L	3L		3L	3L		3L	3L		3L
											3U				3U	3U
Record Keeping										3L	3L		3L	3L		4L
Human Relations										3L	3L		6L	6L		6L
Office Administration													3L	3L		4L
Principles of Instruction													3L			3L
Introduction to Management															3L	3L
																3U
Personnel Management															3U	
TOTALS																
V = Vocational Certificate category				3	3	3	3	3	6	3	3	6	3	3	6	3
L = Lower-division baccalaureate/ associate degree category				4	4	1	7	7	4	13	13	4	22	19	7	27
U = Upper-division baccalaureate degree category												3			6	6

count the options available, his ultimate objective, and the means for attaining that objective. He must plan to capitalize on duty assignments or periods of time that will permit him to attend regular classes. Once his plan has been established, it must be approved and must have the full cooperation and support of his leaders and supervisors.

The requirements of each college will differ. Some programs require very little resident study — perhaps one-fourth of the total hours required. A few require none at all.

A new program — the Servicemembers Opportunity Colleges Associate Degree (SOCAD) program — has been developed to provide a cooperating network of civilian colleges and military installations. The Servicemembers Opportunity Colleges include more than 400 institutions, 70 of which form the currently operational SOCAD network. These colleges help the soldier get credit for his skill, experience, and knowledge while he is pursuing an associate degree during a succession of duty assignments.

A key feature of this program is the contract between the school and the soldier. It allows the soldier to progress within the program regardless of his geographical location. The program also provides for a college parallel program for later transfer to a four-year program.

Regardless of whether studies are to be pursued with a SOCAD affiliate or another school, the basic procedures are the same. The soldier

should obtain counseling from an Army Education Center counselor, who is prepared to help him determine realistic objectives in his choice of a school, in obtaining admission, in seeking credit for extrainstitutional study, in planning a program, and finally in funding his studies.

The soldier should also discuss his objectives with a representative of the school he has selected. At the time he applies for admission to the college, the soldier should submit his request for evaluation and credit, together with a transcript of his previous college resident study or test program credits. While credit may not be awarded for all his previous educational activities, he should file a formal request for this evaluation anyway on the chance that credit will be approved.

The request for credit is filed using DD Form 295, Application for the Evaluation of Learning Experiences During Military Service. This form is usually initiated by an Army Education Center, processed and completed by the soldier's personnel office, and forwarded to the designated school.

When all of these steps have been taken, the contract between the school and the soldier can be drawn up. From then on the school representative will be prepared to provide guidance no matter where the soldier may be stationed. Close coordination between the soldier and the appropriate school representative throughout the entire program is essential.

Thus, a system that was initially

designed to validate the experience and training of servicemembers after World War II has evolved into an integrated system consisting of civilian schools and education agencies, installation education centers, Department of the Army activities, and DANTES. This system is designed to support the commander's program to develop each soldier to his full mental ability.

The Army Continuing Education System complements the service school system and unit training programs; it serves as a catalyst to combine service experience and training with the academic, business, and industrial worlds. In this program, it is the individual soldier, not an educational institution, who is the focal point of the entire effort. All of the supporting individuals and institutions join with the soldier to help him attain his goals for higher education. His goals in turn support the Army's goals, for better soldiers do make a better Army.

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# *The Desert:*

ITS EFFECT ON SOLDIERS





*This is the first in a series of three articles on the special aspects of military operations in the desert. Although several sources were used in compiling the series, much of it is an edited abstract of a British pamphlet – Part 3, Desert, June 1979, Volume V, Operational Techniques Under Special Conditions – which was*

*published by the Ministry of Defence and used by permission.*

*The second part of the series will deal with the effects desert conditions have on operations in general, and the third with the effects they have on logistics and maintenance.*

The desert has been described as a fortress to him who knows it and a grave to him who does not. For the soldier who must fight in a desert environment, this description is particularly apt, and he should make sure that he does know it as well as he can.

By definition, a desert is an arid, desolate, and barren region, waterless and treeless, sparsely vegetated, generally uncultivated, and with few inhabitants. The term *desert* is commonly associated with the extremes of heat and the near absence of life.

Desert regions are subject to sudden and violent storms, glaring sunlight, low rainfall, and drastic changes in temperature. In the summer months, daytime temperatures can range between 110 and 125°F., and metal exposed to the direct rays of the sun can reach even higher temperatures.

By contrast, temperatures can drop at night as much as 80 degrees, and in many deserts the temperature falls below freezing at some time during the year, with strong winds often adding a wind chill factor as well.

There is little rainfall in these regions, and what there is may fall over a very short period during the winter months. In fact, an entire year's supply may come in a single sudden and violent storm that turns dry stream beds into raging torrents and certain types of soil into soft mud.

The wind may blow steadily throughout the year, or it may come suddenly with hurricane force. The desert wind carries dust and sand suspended in it, which can make maintenance difficult, restrict visibility to a few meters, and make life in general almost intolerable. Mercifully, though, the wind usually drops noticeably at dawn and dusk.

The topography of desert areas varies considerably. Although we usually think of desert areas as being more or less flat, they can also include mountain ranges and plateaus, volcanic peaks, and isolated bed rock.

The mountains have steep sides and deep canyons. Through weathering and gravitation over the centuries smaller particles have moved down from the higher hills to form alluvial fans and sheets of sand. The lower boundaries of the fans merge with desert plains, which are in fact the predominant desert land form. In some regions the plains may be partially covered by shifting sands, while elsewhere the winds may have removed the finer sediments, leaving a gravel surface. In still other regions the surface is principally exposed bed rock.

Desert plains are generally characterized by their vastness and their flatness. They may contain small depressions called dry lakes or salt flats, which are subject

to periodic flooding. The wind acts to move and continually modify the shape of the desert sand. Blowing from a particular direction over a long period of time, it forms a pattern of sand dunes, which may range in size from small piles of sand one meter high to giant sand hills up to 300 meters high.

## RAINFALL

Because rainfall is initially absorbed into the surrounding dry terrain or lost through evaporation, stream flow is extremely sporadic. Intense storms cause the streams to flow, and the runoff from the slopes is usually confined to small channels and wadis (canyons). These quickly become raging torrents and carry in their paths rocks and considerable amounts of sand, gravel, and mud.

Not all streams flow into the sea; they may end in ponds, marshy areas, or lakes. Most desert lakes are without an outlet; they lose water by evaporation and over the years become highly salty like the Great Salt Lake in Utah or the Dead Sea. Luckily, there is subsurface water in all desert regions, which may come to the surface naturally and provide the water sources for oases, springs, or shallow wells.

There is no doubt that the desert is hostile to all forms of life, and soldiers who suddenly find themselves there may be under considerable strain. If they are properly prepared and equipped, though, they should be able to operate effectively.

The effectiveness of any unit operating in the desert depends on its standards of individual and collective training, and considerable responsibility for that training must fall on the unit's junior leaders. If it is at all possible, each unit should get some desert training before it is called on to go to a desert region to fight. Although some of the training needed can be carried out in the barracks, it is best done in conditions that are as close as possible to those found in the desert itself.

This training should include:

- The effects of the heat, wind, and light and the differing conditions by day and by night.
- Water discipline and the effects of heat, dehydration, and salt loss.
- The problems to be overcome in daily living to keep fit and prevent disease.
- First aid, including the treatment of heat illnesses.
- The requirement for self discipline and the junior NCOs' responsibility for seeing that the simple precautions are followed.



If the soldiers in the unit have received this training before arriving in the desert, all they will need to be able to fight is a period of time to become acclimatized to the heat. The soldier who is physically fit when he arrives can accept the changes in conditions more readily than one who is not. Natural acclimatization, helped by gradual increases in exercise in the heat, takes about four weeks to fully develop, but a high degree of acclimatization can be achieved in 10 or 12 days.

But there may be times when soldiers must carry out heavy work before this amount of time has elapsed. If so, they should work only during the night or the cooler parts of the day and they should get enough rest. (Each unit's leaders should seek medical guidance on acclimatization and follow it.)

During the day, the sun and wind interfere with the body's efforts to maintain its normal temperature, which it does through conduction, convection, radiation, and evaporation. Because the air temperature is usually higher than the body temperature, the most important way the body has of maintaining its correct temperature is through the evaporation of sweat. Sweat should therefore be kept on the skin as long as possible to improve this process. The only way to do this is to avoid the direct exposure of the skin. (This is one reason why a soldier in the desert must remain fully clothed, even though he may want to wear shorts and take off his shirt.)

## WATER

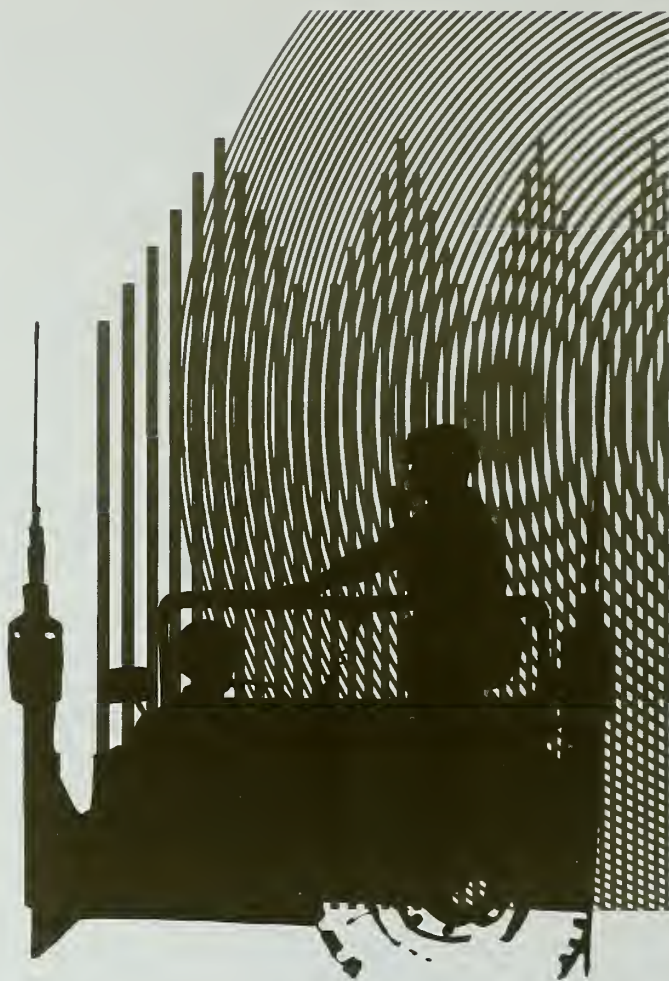
The water that is lost through sweating must be replaced if this cooling process is to continue. Water plays a vital role as well in the body's chemical activities, all of which take place in a water solution. The overall efficiency of the body is therefore diminished by the loss of fluids, and a substantial loss can be fatal.

Because thirst may not be an adequate warning of dehydration, each unit must impose a positive water discipline to ensure that each soldier drinks enough water whether he feels thirsty or not. Even a resting man may be losing as much as a pint of water per hour through sweating, although his skin may appear dry. His sweating is not noticeable because it evaporates too quickly.

A man's daily water requirements will vary with his physical activity, the type of food he eats, and the ambient temperature. The amount of water he needs will range from 6 quarts per day if he is doing light work in temperatures of less than 80 degrees to 13 quarts if he is doing heavy work in temperatures of more than 80 degrees.

In very hot conditions a man should drink small amounts of water often instead of a large amount only occasionally. Water in large amounts leads to waste because it can cause extensive sweating, and it can induce heat cramps as well. Once a day, though, preferably in the cooler hours, each man should drink a large quantity of liquid.

Potable drinking water, then, is the soldier's most



pressing need in the desert, but it may be hard to find. There are few natural water sources and even these may be salty or otherwise unfit to drink. Water discipline therefore means more than just drinking enough water; it includes finding water in the desert, testing it, treating it, and taking care of it once it has been obtained. (For example, drinkable water must be kept completely separate from other water with no chance of confusing the two.) Water discipline also means not wasting water. (For example, water that has been used for washing socks is perfectly all right for a vehicle's cooling system.)

A man can be trained to handle the water he has properly, but he cannot be trained to do without it. Even a soldier who is fit and acclimatized cannot afford to reduce his water intake. In fact, he may need more than someone who is not acclimatized, because he sweats more readily.

Water rationing is therefore unacceptable, except for very short periods. At those times when the supply of water is not adequate, the activities of the men must be reduced accordingly and restricted to the cooler parts of the day; otherwise, they will quickly become less efficient and very probably ill as well.

Illness from heat or dehydration may take three forms, either separately or in combination.

**Heat exhaustion** may occur because of too little water intake. If water that is lost through sweating is not replaced, the soldier may experience dizziness, discom-



fort, tingling, mental confusion and, often but not always, thirst. He will recover rapidly if he rests in the shade with enough water to drink.

**Salt deficiency** has an effect similar to that of heat exhaustion, particularly in soldiers who have not been acclimatized. The symptoms are slowly increasing fatigue, nausea, vomiting, and headache, sometimes accompanied by intense muscle cramps of the arms, legs, and stomach.

These conditions are usually relieved if the soldier drinks water to which salt has been added in the appropriate amount. The issue ration has enough salt for a soldier who drinks up to four quarts a day. If he must drink more because of excessive sweating, he must take extra salt under medical direction.

But too much salt can also be dangerous. Leaders should remember that some water sources in the desert are already salty, especially those close to the sea, and that the water should be tested before adding salt to it.

**Heat stroke**, the most serious condition, is brought about by a breakdown of the heat-regulating system of the body. When a man's body loses its ability to cool itself by sweating, his temperature will rise to a dangerous level; if he is not properly treated, he may die. The soldier who is unacclimatized, unfit, or overweight is especially vulnerable.

The immediate treatment for heat stroke is aimed at

reducing the body's temperature by active cooling. The patient should be placed in the shade, his clothing loosened, and his body cooled with water and by fanning. Medical supervision is most important, and this treatment should be continued until the body temperature is lowered to an acceptable level.

It should be noted that drinking alcohol lessens a man's resistance to heat because it has a dehydrating effect, and that smoking, particularly during the day, increases the desire for water. Both should be avoided.

Another serious problem for a soldier is sunburn, but he can prevent it by keeping his skin covered and by getting a suntan gradually. No more than five minutes of exposure is recommended the first day with increases of five minutes per day after that. Even on a cloudy day, sunburn can be a danger, and suntan lotions do not give complete protection. Unit leaders should never allow sunbathing or sleeping in the sun.

The wind, along with the sand and dust that is suspended in it, can also cause problems, particularly for the eyes and lips. The use of goggles and suitable creams and ointments for the skin and eyes may help. During sandstorms, dust that is blown against the bare skin can be painful, and the correct clothing must be worn to protect against it.

Aside from heat illnesses, many other diseases can be contracted in the desert, and a high standard of training in health and hygiene is required to combat them. These diseases range from dengue fever, dysentery, cholera, and typhoid to fungus infections and prickly heat.

## HYGIENE

To guard against such diseases, the proper standards of personal hygiene must be maintained. Daily shaving and bathing should be required whenever water is available. Electric shavers, adapted to run from a vehicle power source, should be used instead of wet shaves.

Washing the areas of the body that sweat heavily is especially important; underwear should be changed frequently and foot powder used often. If there is not enough water available, troops can clean themselves with sponge baths, solution-impregnated pads, damp rags, or even dry, clean cloths.

Troops should be checked for signs of injury, no matter how slight, as the dirt or the insects of the desert can cause infection in minor cuts and scratches. Small quantities of disinfectant in washing water can reduce the chance of infection.

Even a minor sickness can have serious effects in the desert. Prickly heat and diarrhea, for example, can upset part of the sweating mechanism and increase water loss, which will make the soldier more prone to heat illness. The buddy system, in which each soldier checks another, can help ensure that proper attention is given to these problems before they become incapacitating.

General sanitation measures should include paying particular attention to how food is prepared and handled,





## EXERCISE BRIGHT STAR

In November of 1980, for the first time, units of the 101st Airborne Division (Air Assault) from Fort Campbell, Kentucky, went to Egypt for a two-week exercise.

The following comments, taken from the after-action report of that exercise, demonstrate some of the difficulties that men have in dealing with the desert.

### On water:

- Each man carried two 2-quart and two 1-quart canteens. Local water was not potable.
- There is a heavy fog each night and a steel pot can be used to collect condensation from it for personal hygiene or even for drinking. The pot is placed top down with a conical rock in it overnight.
- A new type of storage container for water must be deployed for operations in blowing sand and dust. The 3,000-gallon open containers are inadequate, even with covers. A 10,000-gallon closed container similar to the fuel blivet should be considered for storing water.

### On health and conditioning:

- Fatigue was excessive because of the climate, unfamiliar terrain, and blowing sand.
- Emphasis on physical conditioning beforehand helps acclimatization.
- Field hygiene should be constantly checked by squad leaders.

• Sanitary standards must be strictly enforced and closely monitored by the chain of command and preventive medicine personnel.

• Details must be constantly employed to keep equipment clean.

• The mess area must be in a location with little traffic to limit dust. The wind blows sand in the food even if it is in covered pots.

• Units should deploy with a refrigerated van and CONEX to keep food cool and secure from pilferage.

• Digging latrines is a problem. The sand fills as fast as the backhoe digs; prefabricated latrines are unusable. Plywood must be provided to keep loose sand from filling the latrine hole.

• Mosquito netting is needed against mosquitos and flies.

### On clothing:

• Sleeping shirts are necessary because of cool nights. The temperature difference at night was 60° during the exercise.

• Insulation is needed between the blanket roll and the ground at night. By 0200, the sand has lost all the heat it absorbed during the day and it feels like sleeping on ice. An air mattress works well.

• The Egyptian boots have wider soles and don't sink in the sand as much as those used by U.S. soldiers.

to the washing of utensils, and to the disposal of waste.

Burning is the best solution for waste, because controlling insects and rodents is an essential part of the prevention of disease. Trench-type latrines should be used, if the ground is suitable, but they must be dug deep enough so that they are not exposed by shifting sand, and they must have protection against flies and other insects that could use them for breeding places.

Soldiers also have to be on guard against scorpions, centipedes, and spiders, the stings and bites of which can be painful, if not usually fatal. Desert snakes can be extremely dangerous and should be avoided; even the bites of nonpoisonous snakes can become infected.

Snakes crawl under bushes, rocks, trees, and shrubs for shade, and soldiers who are also looking for shade must watch out for them. Soldiers should remember to shake out their boots, too, each morning before putting them on.

Another important part of a man's protection in the desert is his clothing. Generally, it should be light-weight and loose-fitting to allow the circulation of the air. A camouflage color is preferable to fatigue green.

Long-sleeved shirts and full-length trousers should be worn, with the trousers tucked into combat boots. Jungle boots should not be worn, because sand will sift into them. A scarf or triangular bandage should be worn loosely around the neck to protect the face during sandstorms and much of the face and neck against the sun.

Each soldier should also have a sweater, a field jacket, a cotton scarf for day use, a woolen scarf for cold and night use, and a sleeping bag.

Because clothing suffers more wear and tear under operational conditions in the desert, strict attention must be paid to washing and maintaining it. Combat boots wear out quickly in desert terrain, especially if it is rocky, and the leather will dry out and crack unless a nongreasy mixture such as saddle soap is applied to it.

Although it is difficult to do, the soldiers must keep their clothing relatively clean by washing it in any surplus water they may have. When no water is available, they should air and sun the clothing to help kill the bacteria in it.

As important as any of these other health considerations is rest. If a man is engaged in sustained operations over a period of several days in the desert, he will become so tired that his performance will deteriorate rapidly. A soldier must be given an opportunity to get enough sleep daily if he is to continue in action; otherwise he must have a period of rest after three or four days of continuous operations.

If soldiers and their leaders undergo some desert training and take the appropriate precautions, there is no reason why they cannot operate effectively in a desert environment. Many have done so in the past. They can take comfort at least in knowing that the desert deals no less harshly with their enemy.



THE  
FUTUR

LIFE

CLIFFORD D. BRADLEY





As the first M2 IFVs are being produced — along with the M1 tanks and the M3 CFVs — the Tank-Automotive Concepts Laboratory (TACL) of the Tank-Automotive Command (TACOM) has already begun a program that will eventually lead to the development of the next generation of close combat vehicles. While selected industry teams are addressing the challenge of what follows these vehicles, the Laboratory is conducting its own concurrent studies using essentially the same information as that already given to the industry teams — proposed operational concepts for the 1990s developed by TRADOC, threat documents provided by the intelligence community, and future pertinent technology projections by various DARCOM elements.

The design of the future IFV is expected to be one of the most perplexing and difficult tasks facing the teams. The difficulty will lie not so much in the technical aspects of the vehicle, but more in discerning the role the vehicle will play on the future air-land integrated and extended battlefield as a member of the combined arms team. In fact, the problem that faces the designers of the future IFV is far different from the one that faces the designers of the future tank.

During the past several decades, the tank has had essentially the same battlefield role, and the changes that have been made in it have come about mainly because of the continuing contest between firepower and armor. In that same period, though, the role of the infantry carrier has undergone far greater tactical and doctrinal changes, and its present role is reflected in the design of the IFV, which is quite different from its predecessors.

Until the IFV, infantry vehicles were essentially transporters of infantry soldiers, and dismounted fighting was considered the infantry's main role. Therefore, the evolutionary changes that were made in the infantry carriers up to the IFV were mainly due to technological gains in mobility and to improved battlefield protection for the "battle taxi."

Thus, the IFV has ushered in a new role for the INFANTRY, that of mounted mobile action, even though dismounted fighting remains a vital role for the infantry soldier. But will the infantry's mounted role become even more dominant? If so, will the IFV's protection level be increased to match its awesome firepower? Will its firepower be upgraded so that it can provide antitank firepower even while on the move? Will the IFV become more like an assault gun vehicle or a tank? Are we heading toward developing a common vehicle or similar vehicles for both the tank and the IFV roles — a single fighting vehicle? These are valid questions, both from a tactical and a technical standpoint, and they certainly will be addressed in the future close combat vehicle study now under way.

Even though the M2 IFV is about to enter the combat vehicle fleet, many military analysts feel it is time to take a fresh look at the roles and the nature of mechanized infantry in the sophisticated combat environment that is envisioned for the late 1980s, the 1990s, and into the next century. But a major problem that faces both designers

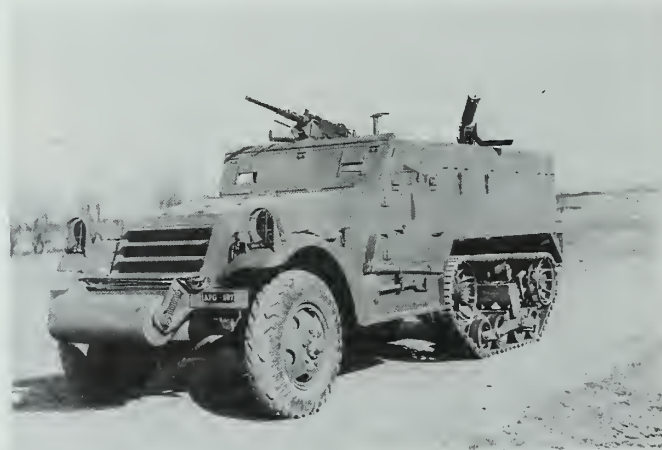
and tacticians is the lack of a suitable and credible model for wargaming the various IFV concepts to determine the relative values of the variables. This is the key to design, performance, and cost trade-offs.

The current combat vehicle models were designed to evaluate tanks and are therefore mainly oriented toward firepower, armor penetration, armor protection, agility and mobility, and target area for the direct fire assault role. Accordingly, the benefit and burden analyses that must be conducted by the design teams, using the group of plausible conceptual options generated in the study, will involve trade-offs in performance, operation, and cost. These analyses will almost certainly highlight the need for improved methodology for modeling the contribution of mechanized infantry to the combined arms team on the battlefield.

A brief history of earlier infantry roles and infantry vehicles will help to clarify the major issues that will shape future fighting vehicles.

## THE WORLD WAR II ERA

In the years immediately preceding World War II, military leaders in Europe were experimenting with new concepts of warfare involving the employment of mobile firepower and the mobility of fighting troops on the battlefield. These advanced thinkers were laying the



HALF-TRACK CAR M2

groundwork for what would later become known as blitzkrieg tactics, which the German Army employed in the early days of World War II. Two men who were to become much better known later, B. H. Liddell Hart of the United Kingdom and Heinz Guderian of Germany, were among the early architects of the innovative employment of armored forces. Although best known for his role as an armor general in World War II, Guderian was an infantry officer who recognized the value and importance of the mobile protected firepower of the tank and the shock action generated by armored formations. Historians also credit Guderian with being the pivotal force behind the idea of using mechanical transports to carry infantry troops into combat. But even though the importance of infantry in support of armor was recog-

nized, the idea of having a dedicated vehicle for the infantry, and its form, did not emerge.

During World War II, especially in the early years, the truck was the main vehicle used to move infantry to battle. Although the U.S. Army used large numbers of trucks to transport its infantry, it also used armored half-tracks in its armor divisions to move infantry on the battlefield. Both the rugged trucks and the armored half-tracks gave the Army a new level of off-road mobility, and this played a key role in moving infantry rapidly in a high mobile combat environment.

## THE POST WORLD WAR II ERA

Although the World War II half-track was quite reliable, had good mobility characteristics on a highway and on secondary roads, and was well liked by the troops, it had serious limitations when employed off a road. This was especially evident in rough, bumpy terrain, or in soft soil, and was caused mainly by the vehicle's front wheels. In rough terrain, the wheels followed the ground contour; they dropped into each depression or struck each upward projection, unlike the track, which "bridged" the terrain for the roadwheels. Thus, the road shocks transmitted to the vehicle gave its occupants a rough ride; they also significantly reduced the half-track's cross-country speed over rough terrain. Likewise, in the soft ground that was characteristic of the muddy European farm soils, the wheel just could not match the track, which provided low ground pressure. Oftentimes, the front end would become deeply bogged down, thereby immobilizing the vehicle.

During the war, though, the Army learned the importance of using infantry in armor combat, and the concurrent requirement for the infantry to have the kind of battlefield mobility that approached the tank's. Clearly, the half-track was not the answer for future infantry mobility; a full-track vehicle would be required. Another lesson learned during the war was that the open top of the half-track left its occupants vulnerable to artillery air bursts. The open top also permitted enemy grenades to be tossed into the troop compartment, which proved a real liability in moving through towns with unfriendly residents who could look down at a half-track's occupants from second story windows. Thus, the solution to the problem of the design of any post-World War II infantry carriers seemed to be a fully enclosed armored tracked vehicle.

## THE M75

One of the fully enclosed tracked infantry carriers that was developed after World War II was the M75. This vehicle was of welded steel construction and used an air cooled, six-cylinder, horizontally opposed AO-895-4 engine, with a CD 500-4 transmission. The M75 weighed approximately 41,500 pounds combat loaded with an in-



M75 ARMORED PERSONNEL CARRIER

fantry squad of 12 men plus a driver and all their equipment. It had a maximum speed of 43 miles per hour. The vehicle was developed and first produced by International Harvester Corporation. FMC was brought in as a second production source, and both companies then produced the vehicle until February 1954. A total of 1,780 vehicles were built by the two companies. One of the reasons for stopping production was the vehicle's high cost.

## THE M59

Even while the M75 was being produced, there was considerable discussion by the management of FMC over the cost of the vehicle. FMC also knew that the Army wanted an amphibious vehicle. Accordingly, FMC offered to design and build a low-cost, amphibious, full-tracked armored infantry vehicle that would be primarily an armored infantry carrier, but which could be adapted for use as a cargo carrier, a litter carrier, a command post



M59 ARMORED PERSONNEL CARRIER

vehicle, and a reconnaissance vehicle. FMC began the design and development process in 1951, and began producing the new vehicle — the M59 — in late 1954.

The vehicle employed two commercial liquid-cooled truck engines, each connected to a commercial hydramatic transmission. Power was transmitted from each of the transmissions to a controlled differential steering system



and from there to the left and right final drives and then to the front drive sprockets. A shifting control, which was linked to both the transmissions and the differential, allowed the driver to select the speed and range. The driver steered and braked by working the steering brake levers that were linked to the differential.

The M59 vehicle was amphibious and its estimated cost was about 50 percent less than the cost of the M75. It also carried a 12-man squad plus a driver, but it had a combat loaded weight of approximately 42,600 pounds. Its top speed was less than that of the M75 — approximately 32 miles per hour. From late 1954 through the end of production in 1960, FMC produced about 4,700 vehicles.

THE M113

In early 1956, TACOM initiated a concept for a new armored infantry carrier. The initial design requirement was most challenging. In simple terms, the vehicle had to offer a high level of protection against both artillery fragments and small arms fire for a 12-man squad of infantry soldiers; it had to have a high degree of cross-country mobility; it had to be able to cross inland bodies of water; and it had to be capable of being transported in an aircraft that could carry 16,000 pounds. The requirements also stated that the basic vehicle design should be such that it could be expanded or converted into other vehicle forms to accommodate various mission requirements involving similar payloads.

From this modest beginning, the largest and longest combat vehicle production program in the world was launched. The preliminary concept drawings were completed in early 1956, and after a quick approval of the drawings and the basic ideas, a test bed was built at TACOM in approximately 90 days. (It should be noted that this was the first military vehicle in which rolled aluminum plate was used as both the structural and the ballistic material. This was a pioneering development effort in the welding of ballistic aluminum plate, and the techniques for doing this type of welding were developed at TACOM during this period.)

The original test bed (initially called the universal chassis) used an air-cooled military engine and a military transmission; it also used a flat track suspension system with no support rollers. TACOM engineers conducted the testing and evaluation, which included a trip to nearby Selfridge Air Force Base for a swimming test in Lake St. Clair. The test bed provided the necessary hardware to resolve such critical issues as fabricating the vehicle by welding ballistic aluminum plates, ballistic testing of welded samples, suitability of interior volume, power plant integration, automotive performance, and a projection of the all-up, test bed weight.

With engineering feasibility established by the universal chassis test bed, and with other engineering and economic analyses looking favorable, approval was given in late 1956 to seek competitive proposals for the engineer-

ing development of a new infantry carrier. As a result, the winner, FMC, was awarded a contract to build engineering prototypes of the new vehicle for development and operational testing.

The entire M113 development program was completed and the first production vehicle delivered only 43 months



M113A1 ARMORED PERSONNEL CARRIER

after the award of the first development contract. In that period of time, prototypes that used steel armor (T-117), aluminum armor (T-113), air cooled engines, water cooled engines, ordnance transmissions, and commercial transmissions were designed, built, and tested. The aluminum hull construction proved superior from the standpoint of ballistic protection, and it was also the most durable and cost effective from a manufacturing standpoint.

The new prototype vehicles were completed by early 1959, and after their successful testing, FMC was given a production contract. The first M113 vehicle was produced in 1960. The weight of the first M113s was 22,900 pounds combat loaded, but that weight could be reduced to 18,600 pounds for air transport.

The original M113 was powered by a commercial gasoline engine, and production with this engine continued up to 1964. It was during this period that the Army made the decision to put diesel engines in all of its combat vehicles. There were two major reasons for this decision: diesel fuel was safer than gasoline in the event the vehicle suffered damage during combat, and a diesel engine's fuel economy was some 25 to 30 percent better than that of a comparable gasoline engine. In 1964, the first diesel-powered M113, employing a two-cycle commercial diesel engine, was produced. Other minor modifications were made in the engine compartment, and this version became the M113A1. The diesel version has been produced by FMC continuously from 1964 to the present time.

In 1976, TACOM started a three-phase product improvement program for the M113A1. It called for the following:

- A higher performance suspension system and an improved cooling system.



- Upgrading the diesel power plant from 210 horsepower to 275 horsepower by turbo charging, and coupling this with a new X-200 transmission.

- Extending the vehicle length by adding a set of roadwheels (six per side instead of five), thereby increasing the payload by 100 percent and the interior volume by 26 percent.

Five prototypes were built to test the improved suspension and cooling systems, while five more had the improved engine and power plant in addition to the new suspension and cooling systems. All ten prototypes went through 6,000 miles of developmental and operational testing, after which the Army decided to phase in only the improved suspension and cooling systems. This change was incorporated into the vehicle's production in 1979 and this version became the M113A2. Although the new power plant successfully passed the extensive period of testing, it was not recommended for production mainly because of start-up tooling costs and a lack of valid requirements from the field to justify the additional power and performance.

Two test beds of the extended or stretched M113A1 were also built and evaluated. Although the extra payload and volume were attractive, the cost effectiveness of incorporating them into production was questionable and was not pursued.

If the original weight goal for the M113 had not been set at a challenging 16,000 pounds, the original vehicle probably would have been built with the six roadwheels and the extended length in the very beginning, because it would have had a more practical payload and volume for its weight. With five roadwheels, the L/T ratio (length of track on the ground divided by the distance between track centers) of 1.25 is in the low end of the 1.2 - 1.7 range for most track vehicles. With six roadwheels, the vehicle's L/T ratio is just over 1.5.

In retrospect, it must be conceded that the M113 program has been most successful. The M113, the M113A1, and the M113A2 have been reliable and cost effective, and they have been responsive to the needs of the infantry in terms of mobility and protection. The major deficiency in the vehicle over the years has been its lack of adequate protected firepower. There are two probable causes for this deficiency. First, in the beginning of the program and up to the introduction of the 25mm Bushmaster weapon, the U.S. did not have a good heavy automatic weapon larger than the .50 caliber machinegun. Somehow, during the vehicle's early years, a good enclosed weapon station for the .50 caliber machinegun was not fielded, either because there was no suitable candidate station or because there was no stated requirement. Second, and particularly since the beginning of the M2 IFV development program, many people have felt that the infantry community really did not want to improve the M113 too much in terms of firepower, mobility, and protection because that might somehow adversely affect its chances of getting a new fighting vehicle.

Thus, the M113 vehicle has been in development and

production for more than two decades. A measure of the magnitude of the M113 program can be seen in the following:

- More than 63,000 M113 vehicles have been built by FMC, plus an additional 3,900 M113-type vehicles built by OTO-Melara in Italy under a co-production licensing agreement.

- More than a dozen variants of the family have been produced.

- The M113 vehicle or variants of it have been used by the armies of 50 countries.

- Since 1960, some version of the M113 family has seen service in every conflict or peace-keeping effort in the world.

- More than a half billion pounds of aluminum has been used in building these vehicles.

### MICV '65 XM701

The Mechanized Infantry Combat Vehicle (MICV) '65 program was begun as a result of concept studies made by the Pacific Car and Foundry Company (PACAR). These studies led to a contract, awarded to PACAR in the spring of 1964, to build six prototypes. The contract called for fabricating two aluminum and four steel prototype infantry fighting vehicles using, to the greatest extent possible, existing automatic components and state of the art technology.



MECHANIZED INFANTRY COMBAT VEHICLE, XM701

The prototypes used the power plant, track and suspension of the M107/110 self-propelled howitzer, and the final drives of the M109 self-propelled howitzer. The weapon station, fabricated with steel, was designed to be a two-man station with a 20mm cannon and a 7.62mm coaxial machinegun. The first prototype was completed in some eleven months while the other five prototypes were completed about eight months later. The aluminum prototypes weighed about 49,000 pounds, the steel versions about 52,000 pounds. The protection level for the driver, nine men, and the two-man weapon station approached the protection level of the later IFV requirements. The vehicle had firing ports for the crew members, and although the weapon stations initially were not stabilized, on one prototype the station was outfitted



with an early version of the 25mm weapon and a stabilization system. Subsequently, the other five stations were upgraded with stabilization and control systems.

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All of the prototypes were evaluated, and the tests and evaluations were actually continued by the Army and the contractor up to the release of the IFV Request for Proposals in 1971. The MICV '65 was amphibious, and several innovative water propulsion systems were applied and evaluated.

From a technical standpoint, the prototypes were well engineered and performed quite well. But the vehicle was rather large, and being 124 inches wide it could not be transported by air in the C141 aircraft.

## IFV M2

The Advanced Concept Group at TACOM started its preliminary concept activities on a new IFV in 1963 as a follow-on vehicle to the M113. The guidelines were essentially the same as for any new combat vehicle: improved protection, firepower, and mobility over the vehicle it was to replace with reduced maintenance, higher reliability, availability, and maintainability (RAM), and at equal or lower cost. The additional guidance appeared gradually as new requirements were factored in by new users.

Unfortunately, no one seemed to be quite sure how far they wanted to go in achieving "improved protection, firepower, and mobility." Between 1963 and 1972, therefore, the Advanced Concept Group generated approximately 145 vehicle system concepts with supporting analytical work and an equal number of mini-layouts of subsystems and the technical integration of these subsystems into various types of concepts.

From these system concept layouts, at least eight wooden mock-ups were built and reviewed in response to the changing requirements that were being proposed and in an attempt to resolve what at that time represented essentially the best technical approach. It must be remembered that during this period the Army was doing a bit of real soul-searching trying to determine how far it could go, technically, in sampling all the opportunities that appeared to be there for the taking. During this same period, the armor community and others were going through the same technological "binge." Evidence of the inevitable hangover from all of this was the curtailment of the MBT-70 XM803 tank program in December 1971.

During this period, too, the Advanced Concept Group explored the entire spectrum of technological alternatives, including concepts for vehicles as small as 16,000 pounds, and as heavy as 100,000 pounds for those with NBC protection. It explored half-squad vehicles and two-squad vehicles; front power plants, rear power plants, centrally mounted power plants, and split power plants; engine rear, transmissions in front, and just the opposite. It explored various levels of armor protection, with automatic components to match each weight resulting from the selected armor level.

The Group also investigated articulated concepts as well as a host of concepts that had "normal" automotive performance but were festooned with mobility augmenting devices for unusual mobility requirements, or for self-recovery in almost any situation that could be encountered. Various types of weapon station concepts, both one-man and two-man stations, were prepared employing weapons from 15mm to 30mm in size. Mock-ups of several of the weapon stations were built and evaluated on some of the vehicle concepts.

With the results of all this technical work, the Army in 1971 put together the requirements for the Mechanized Infantry Combat Vehicle (MICV), later renamed the In-



M2 INFANTRY FIGHTING VEHICLE

fantry Fighting Vehicle (IFV). A competitive program brought proposals from three contractors, with FMC being named the winner and being awarded a development contract in 1972. The requirements for the IFV and the Cavalry Fighting Vehicle (CFV) were merged in 1974, and a common two-man weapon station using the 25mm Bushmaster cannon was agreed on by the infantry and armor communities. In 1975, a decision was made to mount the TOW missile system on the two-man station.

After the IFV and the CFV were merged and the TOW missile mounting decided on, new prototype vehicles were fabricated. By the time production of these vehicles began in late May 1981, they probably had more test miles on them, representing exhaustive and comprehensive testing, than any other vehicle produced to date anywhere in the world.

The M2 IFV is a modern, highly mobile, advanced fighting vehicle. It offers the infantry squad an entirely new tactical ability — the ability to fight on the move under armor, not only for the weapon station but also for the squad members with their firing port weapons. The M2 is the Army's first new infantry vehicle in more than two decades.

But the Army's planners and developers are already looking at what the future holds for the next generation of IFVs. Obviously, any improvements in performance will come from advancements in battlefield survivability and firepower, in improved mobility to match the other advancements, and in improved survivability through even better agility and mobility.

Regarding improved survivability, it has been noted by many military analysts that although the M2 is a companion to the M1 tank in the combined arms team, there is a big difference in their armor levels. This has generated questions concerning how the M2 will be employed in high intensive combat roles with the M1 when the threats will most certainly challenge even the M1's protection levels. This is a valid concern, and one for which the infantry developers of tactics and doctrine must find answers. From a technical standpoint, any significant increase in the armor weight of the M2 would have an adverse effect on the vehicle's automotive performance and RAM characteristics, and these degradations could reach unacceptable limits long before any appreciable or meaningful increase in protection could be obtained against a high intensity battlefield threat.

One approach may be to seek a 50 percent to 75 percent increase in the vehicle's horsepower-to-weight ratio by technological advancements in the engine and power train, hopefully without a significant increase in its weight. Under some battlefield conditions and against some threats, this added agility could significantly improve the vehicle's survivability.

Another means of improving survivability, again hopefully without an appreciable gain in weight, is through the application of countermeasures. The technology in this area is advancing rapidly, and several approaches involving reduced detection, hit avoidance, and suppressing enemy firepower by various means are all under way. Some of these countermeasures are in test beds now being evaluated, while other test beds are planned.

Another means of improving protection for the infantry squad on a high intensity battlefield, of course, is with a heavier vehicle employing advanced armor technology comparable to the M1 or future tanks. If the vehicle's weight approaches that of the tank, though, and if tank automotive components are used, the cost of the vehicle with the current IFV's firepower will be about the same as a tank. There are some preliminary studies under way at TACOM that address the ways by which this cost pitfall might be reduced.

Although the M2 has impressive firepower, well meaning critics have pointed out that the inability of the crew to fire the TOW on the move is a serious drawback, especially in a battlefield situation where a vehicle's mobility and agility significantly contribute to its ability to avoid hits and where to stop and fire the TOW would be disastrous. This raises the question as to whether the future IFV should have a different kind of antitank capability, one that would permit its crew to fire at enemy armor while on the move. The question then arises as to whether this should be a fire-and-forget missile that could be fired while moving or perhaps even a medium caliber automatic cannon. If additional armor protection resulting in a heavier vehicle were to be considered for enhanced survivability, then certainly a kinetic energy cannon, even up to the size of the present M68 105mm weapon, would be most appropriate from a technical standpoint.

The above are just a few of the many options that incorporate the various levels of increased armor protection, countermeasures, firepower, and mobility that will be studied over the next few years. And, of course, each must reflect a totally new look at NBC and other battlefield threats.

Historically, before the M2, there was no strong relationship between the infantry and its role and the vehicle it used to go into battle. With the introduction of the M2 — and for the future — the infantry squad, its role, and its vehicle must develop a new relationship. That relationship will tend to be more like that recognized by the armor people and by the combat engineers, where, historically, their missions and their roles have had strong ties with the vehicles or materiel they use to execute their missions.

This has great significance for both the infantry community and for TACOM, and the way in which they approach the design of the follow-on vehicle to the M2. TACOM must start with a heightened awareness of the new importance of the vehicle to the infantry mission, and its vehicle architects must develop yardsticks for performance for the future infantry fighting vehicle that equate to the well known measures for performance in the tank world — firepower, armor protection, mobility, agility, target area, rate of fire, internal armored volume, and the like. By doing this, they will be able to offer the infantry user, as they have the armor community, conceptual alternatives that incorporate effective affordable options for his evaluation and analysis.

In turn, the infantry user must develop a yardstick that will enable him to assess the merits of the alternatives and to evaluate them in terms of his future needs. After he has done this, he must then start the conceptual alternatives on their way toward meeting his operational needs.

Dialogue between the infantry user and the vehicle developer, therefore, must be stepped-up if the two are to articulate the challenges and develop possible solutions. Together, they must plan the vital cooperative programs that need to be started so that a program for the development of a vehicle to follow the M2 IFV can be started and carried on in a timely manner.



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# Troubleshooting Rifle Marksmanship

SEWARD SMITH  
ART OSBORNE

For many years the U.S. Army rifleman enjoyed a well-deserved reputation as an outstanding and feared marksman. That reputation is no more.

Today's average American soldier can hit only 55 percent of the personnel targets he fires at at ranges of 50 to 300 meters and only 27 percent of those at 300 meters. (This is his marksmanship skill level immediately after basic marksmanship training; it probably falls after he is assigned to a unit.) This is far below the British and West German minimum standard of 70 percent hits on similar targets at comparable ranges and also well below the U.S. Marine Corps' average performance on much the same kinds of targets at greater ranges.

Armies have always been concerned about how well their riflemen can shoot. The U.S. Army is no exception. It has devoted considerable effort over the years to the examination and improvement of its marksmanship training program. Its most recent research efforts have been carried out by the Army Research Institute for the Behavioral and Social Sciences (ARI) with the assistance of the Infantry School. The goal of this research has been simply to find the most effective training that can be implemented at reasonable costs of time and ammunition.

In examining the current 37-hour entry level marksmanship program, research psychologists on the ARI staff participated in Army basic rifle marksmanship (BRM) training, interviewed Army, Marine, and British experts, tested the M16A1 rifle, designed new targets, and tested more than 12,000 soldiers in different experimental programs at Fort Benning, Georgia, and Fort Jackson, South Carolina. (This research program was sponsored by the Infantry School's Directorate of Training Developments and had that Directorate's active involvement throughout.)

The product of this research is a new POI that has been approved by the Army for its basic rifle marksmanship program. The new program, which is now being used by the 1st Infantry Training Brigade at Fort Benning and at two other Army Training Centers, includes a moderate increase over the current POI in rounds, an increase from 37 hours to 60 hours in length, improved shot location feedback, new targets, and how-to-teach aids for the instructor corps. In tests with more than 8,000 recruits at the 1st Infantry Training Brigade, record fire hits increased from 55 to 70 percent on 40 targets.

A small portion of this increase (up to 5 percent) can be attributed to the fact that six of the 40 targets were

exposed at closer ranges; however, exposure time was reduced for all targets and the minimum number of hits required to qualify was increased from 17 of 40 to 23 of 40.

The story of the causes of the Army's marksmanship problems, how the problems developed, and the practical solutions that were incorporated into the new POI goes back several years.

## HISTORY

In 1976, the Army was looking for a cost-cutting, time-saving alternative to its Army Subject Schedule 23-72 (ASUBJSCD 23-72) marksmanship program. That program required 77 hours and 720 rounds of ammunition, but the soldiers trained with it averaged only about 55 percent target hits on their record fire final test. The shortest alternative POI tested in the 1976 research investigation resulted in almost the same performance, but since it required less than half the time and ammunition (37 hours, 334 rounds), it was adopted in 1977.

In retrospect, some major problems with the 1976 revision of the BRM program are quite evident. First, the baseline ASUBJSCD program itself produced poor performance. Second, and more important as a scientific clue to the crucial flaw in BRM training, the extra hours of practice on the fundamentals that were cut from the ASUBJSCD had made no difference in the soldiers' skills. This meant that either zeroing and field firing skills were at their best — obviously not true — or something more basic than practice was missing from both the ASUBJSCD program and the 37-hour program.

The adoption of the 37-hour POI saved the Army money, but the program was accepted only on the condition that a thorough investigation of the Army's marksmanship training program would be conducted. But it was hard to isolate any single change as the cause of the marksmanship problem. A series of cost-cutting measures had gradually changed the Army's BRM program: known distance ranges had been phased out in the 1950s; instruction by generalist NCOs had become the policy in the 1960s; economy had required that more troops be trained at one time through larger student-instructor ratios. ARI was given the task of conducting the investigation.

Four of us on the ARI research staff — all psychologists — decided that taking the actual BRM training then being offered would be the smartest first step in diagnosing the problem. In 1978, we joined a group of new recruits at Fort Jackson for that training. (We were a motley crew in our jeans and web gear, and part of our welcome was a double time march to the range by the cadre, who knew our identity as Army training researchers.)

Our first-hand experience was invaluable. The drill sergeants came forward throughout the training to share their points of view, while the head of the committee group became a research partner and eventually helped

us to develop major experiments.

## FEEDBACK

The first thing we needed to know as trainees was, where did our bullets hit? No one could tell us.

As psychologists, we knew that the most universally accepted principle of human learning is that the student must know the results of his performance if he is to learn. The most serious problem with the then current BRM program was that it did not give the soldier enough detailed and timely knowledge of his own shooting performance. It also compressed the fundamentals into 10 hours of formal training, during which the soldier might fire as few as 27 shots. This was too little time and too little practice for him to attain steady position, proper aiming, breath control, and trigger squeeze, let alone accurate zeroing of the rifle. And these 27 shots were the only ones on which the soldier got any kind of detailed performance feedback — he walked downrange to examine his 25-meter target after each three shots. From this point on, though, popup targets that fell when hit were used, and the soldier had no way of knowing where his hit was located, or, in the event of a miss, where his bullet went.

The popup targets used in most of today's BRM training were designed in the 1950s to teach transition to field firing at fleeting, indistinct, combat-like targets once the soldiers had fully mastered the fundamentals of shooting. They were never intended to provide the detailed, shot-by-shot feedback necessary for diagnosing problems, for correcting a faulty zero, or for gradually sharpening a beginner's shooting ability.

After completing our BRM training, we concluded that the most serious instructional problem with the program was a general lack of knowledge in the marksmanship fundamentals on the part of the committee group and drill sergeant instructors. They had come through a similar thin, non-instructional, non-feedback marksmanship program themselves. They had not seen firsthand the downrange effects of their bullets, and had received little, if any, instruction in how to teach BRM. In addition, budget constraints had greatly reduced the number of available BRM instructors. It was not uncommon to see one instructor responsible for 10 or even 20 soldiers at a time on the firing line. There was virtually no opportunity to give the new soldiers individual attention at the time they needed it the most.

We found several other problems. Much of the instruction appeared to be hurried, and there were few chances to practice or review the material. Concurrent training, which was conducted for some soldiers while the others were shooting, often did not relate to or help what was happening on the firing line. Too few performance measures were taken to check a soldier's progress or detect his problems. The standard rifle zeroing target was confusing to use, and zeroing in general was difficult to learn. Many soldiers missed significant portions of the instruc-



tion, and because of the compressed schedule they had no opportunity to make it up.

The training content, too, appeared to be a problem. Nothing was taught about the effects that wind and gravity could have on a bullet. Much of the traditional marksmanship information apparently had been lost over the years or reduced to "the eight steady hold factors." Those factors combined such elements of firing as taking up firing positions with principles such as trigger squeeze and breathing, which few of the soldiers had mastered.

## FURTHER INVESTIGATION

We visited several other Army Training Centers, and these confirmed our Fort Jackson observations and experiences. In fact, by the time we finished our BRM training at Fort Jackson and made our trips to the other posts, we felt there were several ways in which the BRM training could and should be substantially improved.

This feeling was further reinforced when we spent a week at Parris Island, South Carolina, watching the U.S. Marine Corps conduct recruit marksmanship training. The Marine Corps program, which is similar to the Army's training of 25 years ago, featured nearly 90 training hours, highly skilled instructors in sufficient numbers, and excellent feedback on bullet location by spotters on known distance (KD) ranges.

A direct comparison between the Army and Marine Corps programs is difficult because the Marine recruit fires at a single, clearly visible, known distance target with a contrasting background, and sight changes are made for each range. However, the data we brought back told us that the Marine recruits hit the equivalent of the Army's 300-meter silhouette target 37.3 percent of the time, compared with 27 percent for the Army's soldiers. This occurred despite the fact that the Marine Corps target was located some 457 meters away (or at 52 percent greater range). The typical Marine recruit was also very knowledgeable about his rifle and how to fire it.

Our findings did not necessarily suggest that the Army should return to KD firing or that it should copy the Marine Corps' program. But they did point out clearly the value of a soldier's knowing where his bullets hit and the benefit of having quality instructors in sufficient number. (These points were also stressed by the marksmanship training experts we later interviewed from the British and West German infantry schools.)

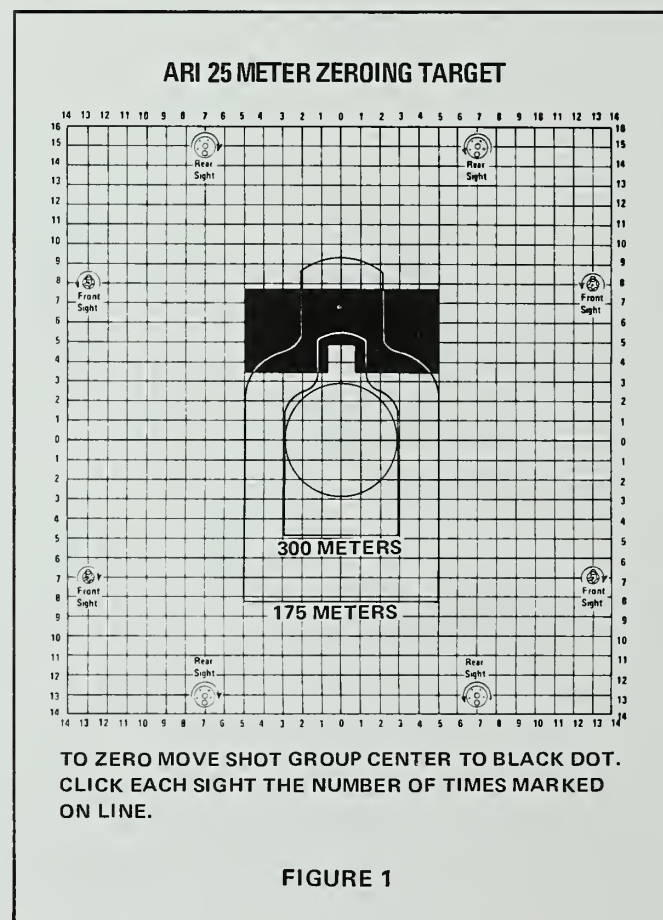
These trips and observations led us to develop several pilot studies and field experiments. We immediately began a pilot test of the most promising ideas at Fort Benning, and as our techniques were perfected, they were evaluated in field experiments with larger numbers of recruits, usually at Fort Jackson.

The first major experiment was conducted in conjunction with the U.S. Army Marksmanship Unit (AMU) at Fort Benning in September 1978. We examined the annual M16A1 rifle requalification firing of a battalion from the 82d Airborne Division. The soldiers were tested in

three experimental groups. The first went through one day of the standard requalification that included little instruction and little feedback. The second group of soldiers took part in a two-day program with the AMU instructors conducting the training. This represented a major increase in the quantity and quality of instruction. The third group was put in a three-day program that included the AMU instruction plus a day on a KD range, shooting with accurate downrange feedback. Groups one, two, and three averaged 23, 25, and 28 hits, respectively, out of a possible 40 on their record fire. The third group's 22 percent increase over the standard condition indicated the value of having shooting performance feedback and better qualified instructors.

Next, we addressed two of the serious problems we had observed at Fort Jackson: the soldiers there did not understand the rifle zeroing process, and there was little or no feedback on their shots at distant targets.

The current zeroing target requires an unnecessarily complicated sight-change calculation process, and it contains no aids or instructions to help the soldier. We developed a new zeroing target to clarify the zeroing process (see Figure 1). Now, after locating the center of his shot group, the soldier can look to the margins of the target to see how many clicks he should move which sight in which direction to shift the center of his next shot group. The target also gives cues about shooting at more distant targets. If a firer can keep all of his bullets within the circle of this 25-meter target, in later field firing he is likely to hit all targets out to 300 meters. If he cannot, he needs help.





The ARI down-range feedback exercise showing the smaller 75-meter target (F-type) and the larger 175-meter target (E-type) as seen from the firing line.

For many years, a new soldier received feedback on his long-distance shots by firing on KD ranges as the Marines do today, but in the late 1950s most of these ranges were abandoned in favor of popup target, field fire ranges. Because it would be costly to rebuild those KD ranges, we designed an inexpensive downrange feedback process. The process involves placing field fire targets (E and F silhouettes) against background paper on frames. These frames are then installed on an easily modified standard field fire range using the existing 75- and 175-meter target locations. (See accompanying photographs.) The shooter now fires five-round groups at the two targets in his lane and then walks downrange to see and mark where his bullets hit the target — if they did. Because the markers (spotters) are visible from the firing line, the instructors can easily see who needs help.

We tested the adequacy of the new zeroing target and the downrange feedback procedure at Fort Jackson during October and November of 1978. A total of 2,124 soldiers in basic training used an earlier form of our new rifle zeroing target for all zeroing training and performed the downrange feedback exercise instead of one of their regular field firing periods.

We compared four training conditions. One group underwent standard training (22.7 record fire hits). A second group had standard training but used the new zeroing target (23.7 hits). A third group had the standard training plus downrange feedback training (24.5 hits). The fourth group had standard training with both the new target and downrange feedback (25.5 hits).

This experiment showed us that there was an increase in record fire performance when either the new zeroing target or downrange feedback was added, and a still greater increase when both were used. We concluded that the new zeroing target and downrange performance feedback should become parts of the projected new training.

In the course of our research and observations, we also felt the need to check the adequacy of the information

that was available on the M16A1 rifle (for example, its accuracy and trajectory), and to become more knowledgeable about its strengths and weaknesses. But we needed experimental evidence under controlled conditions — not anecdotal opinions. Therefore, we performed a variety of pilot tests with the cooperation and test facilities of the Army Marksmanship Unit.

We drew sixty weapons at random from the various training companies and weapons pools at Fort Benning. All 60 rifles were used for some of the testing, but a smaller sample of rifles, spanning the best to worst in shooting quality, was used for other tests. Here are several of our more noteworthy findings:

- The average M16A1 rifle is capable of firing shot groups that easily fit within the four-centimeter circle of the 25-meter zeroing target and, therefore, can hit all targets out to 300 meters.

- The existing serviceability checks eliminate a malfunctioning rifle but do not detect an inaccurate one. If a soldier is shooting poorly, it could be the fault of his weapon. Only a test firing by a competent marksman can rule out the weapon as being the problem.

- The rifle's trigger pull ranges from 5.5 to 10.5 pounds, averaging 7.9 pounds. With experienced shooters, shot group size did not increase with greater pull weight. But with inexperienced shooters, a better trigger mechanism may improve shooting performance.

- Our tests confirmed that the M16A1 rifle's trajectory, on the average, is as shown on the lower curve of Figure 2. The 25-meter zeroing procedure results in a good 250-meter battle sight zero for most rifles.

- The lightweight barrel of the M16A1 will bend when various sources of external stress are applied. The extremes of these effects can be demonstrated by changing from a hasty sling to a bipod firing position. The sling causes bullets to strike very low, while the bipod causes very high shots. At 300 meters the difference in bullet strike between these barrel bend sources can be as much as two to four feet.



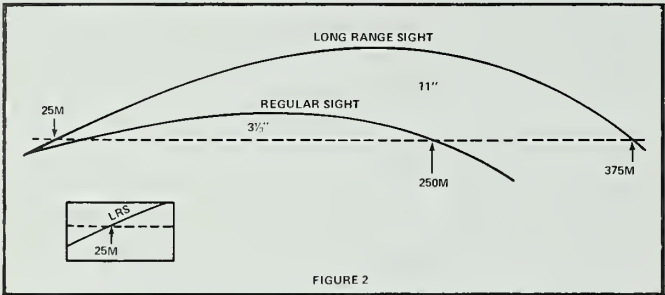
The ARI down-range feedback 175-meter targets showing construction and the use of a spotter to aid in shot group location and problem diagnosis.



• With the M16A1 standard sights, failure to center the top of the front sight in the rear sight aperture (sight alignment) is not likely to cause a hit error of greater than six inches at 300 meters.

The findings from these tests supported the development of shooting fundamentals that focus only on the factors having a major influence on bullet strike, the tightening of the zeroing criterion from 5.2cm to 4cm, the development of scaled silhouette targets for 25-meter firing, and an increase in qualification standards.

The long range sight on the rifle shifts the battle sight zero of the weapon from 250 meters to 375 meters. In the process, it moves a bullet's trajectory upward so that it crosses the line of sight at almost exactly 25 meters (see Figure 2). Thus, we found that by using the long range sight on a zeroed rifle and firing at targets 25 meters away, a shooter will hit almost exactly where he is aim-



ing. This led us to develop another 25-meter silhouette target, which is suitable for zeroing using a center of mass aiming technique (see Figure 3). We also developed several scaled silhouette targets for use at 25 meters with the long range sight. These simulate the field fire targets the soldier will see later in his BRM program (see Figure 4).

With these scaled targets, the soldier can now show that he understands center of mass aiming, and that he can learn to hit the targets as a transitional step to field firing. *This allows exact location feedback of hits or misses at simulated long ranges.* Field firing against popup targets gives far less detailed feedback. The scaled silhouette targets, therefore, can identify problems that need to be remedied before a soldier attempts any field firing.

ARI's last experiment before developing the new POI was to test the most promising combined programs for basic marksmanship training that had emerged from our research. This, too, was conducted at Fort Jackson, and during April and the early part of May 1979 we collected data from 1,151 male and female soldiers. The major features we evaluated included the use of the ARI zeroing target, scaled silhouette target transitional exercises, feedback by walking down range to examine targets and, in some cases, the use of extra instructors. We also focused on the four fundamentals of firing (steady position, aiming, breath control, and trigger squeeze), on the various means for diagnosing shooters with problems, on a logical progression for acquiring skills, and on every possible way to provide shooting performance feedback.

Again, we used a baseline control group. This group

was made up of soldiers who had been given the standard marksmanship training. We tested three new programs, all of which used our new zeroing target and silhouette target exercises. We varied the number of instructors and also varied the use of downrange feedback exercises and additional silhouette firing at 25 meters.

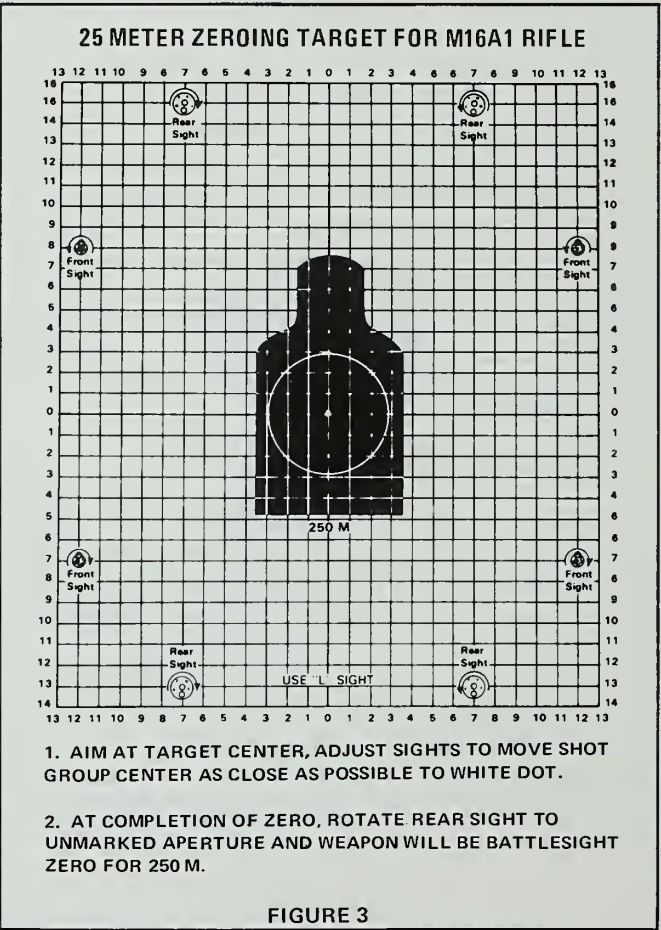
In general, the group whose training included all the improvements outperformed the standard training group by 29 percent, with a score of 26.5 record fire hits as compared to 20.5 hits. Those soldiers who missed some training had poorer scores (usually by three to four hits) than those who were present for all the instruction. The use of more instructors led to somewhat better performance, but we quickly learned that having more instructors was not necessarily better if the additional instructors were not properly qualified.

The experiment definitely showed that we had found ways to increase a soldier's record fire performance, even with limited program resources.

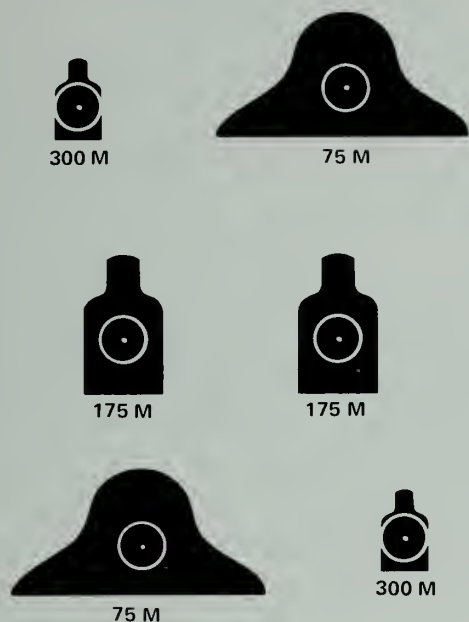
Accordingly, we then developed a new program of instruction based on these experiments. It was refined and tested with more than 8,000 soldiers who were in their initial entry training with the 1st Infantry Training Brigade at Fort Benning. The program was approved for use in the Army's training centers in October 1980.

The new program emphasizes five major points:

• The soldiers are now given as much feedback on their shooting performances as present technology and expense will permit. This enables the poor shooter to



# 25 METER SCALED SILHOUETTE SLOW FIRE TARGET



THE WHITE DOT ON EACH TARGET SHOWS THE CENTER OF MASS AIMING POINT. BULLETS SHOULD HIT WITHIN THE CIRCLE BUT ARE SCORED AS HITS IF THEY HIT ANY PART OF THE SILHOUETTE.

FIGURE 4

correct his mistakes and the good shooter to sharpen his skills.

- The soldiers are now taught simplified fundamentals before moving on to field firing exercises.
- Several diagnostic check points are used so that problems can be detected and corrected early.
- The soldiers progress naturally from fundamentals to the rapid engagement of targets in a combat-like setting, with each exercise serving as a building block for the one that follows.
- Finally, the program is designed to help an instructor teach. As an aid to this process, an instructor's guide has been prepared and is now being field tested.

Even with this new program, there are still some unresolved matters. As stated earlier, the fundamental problems with our marksmanship program had been insufficient feedback on shooting performance to correct mistakes or sharpen skills, too few instructors who were well trained, and inadequate time for the soldiers to practice and acquire marksmanship skills. The new marksmanship program will do much to overcome these problems, but even more can be accomplished if we consider the following points:

- **Realism.** Although the new rifle marksmanship training program seeks to conduct the best training with the ranges and equipment now available, there is a need for increased realism in training. Given the fact that most

personnel targets in combat move, it is essential that soldiers be trained in the techniques of moving target engagement: target acquisition, rough range and speed estimation, tracking, target lead, and close combat techniques. The introduction of Infantry Remoted Target System (IRETS) equipment will provide moving and stationary targets, computer driven scenarios, and automated feedback. Under the new rifle marksmanship program, soldiers will be required to engage a variety of stationary and moving targets at ranges of from 15 to 300 meters, which will present them with a more combat-like situation.

- **Quantity and quality of instruction.** Policy decisions at the highest levels are needed to correct the problems with the instructor corps. Even the new program in operation at Fort Benning must be taught with student-instructor ratios of 10 or 20 to 1 on the firing line, simply because additional personnel are not available. Little instruction is possible under such circumstances.

The marksmanship instructors are not specialists; in fact, they are rarely given any special training before they assume their duties. There must be more instructors and they must be better trained.

- **Length of training time.** Conventional wisdom regards a 90-hour marksmanship training program as about right for teaching the entry level skill. This would permit enough repetition of the fundamentals for both original learning and skill retention. The 1976 program attempted to save time and ammunition and drastically reduced the length of the program. The new program reverses that

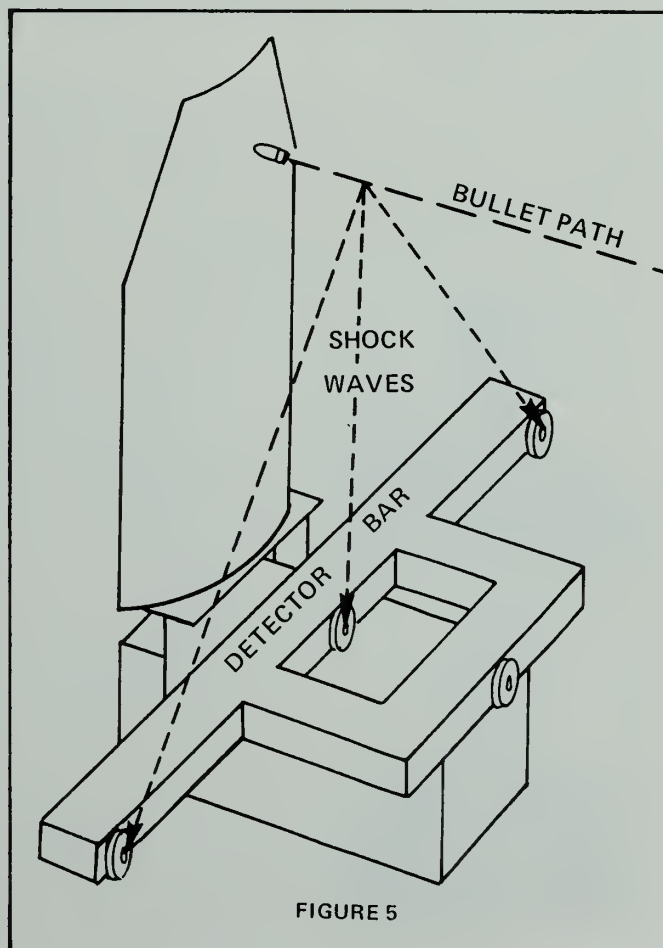


FIGURE 5



trend by increasing the length from 37 to 60 hours — but this is still far short of the 90 hours of the past.

Much of the new training is still episodic: the student performs an exercise one time and then moves on to something else. For example, the downrange feedback exercise of the new program is done only once, not because that is enough, but because there is not time to repeat it.

This problem area will also require high level policy decisions before it is solved. An examination of the length of the entire initial entry training program probably should be considered.

- **Feedback.** Whether or not the length of the training program is adequate is partly a matter of how efficiently training time can be used. One major effort in developing the new program has been to make each period of instruction as self-teaching as possible so that a soldier can acquire skills even in the absence of instructors. Feedback on shooting performance is most important in this process. Many of the new exercises have much better feedback built in, particularly the 25-meter activities.

- **New technology.** Some new equipment developments hold great promise for bettering a soldier's acquisition of the basic marksmanship skills because of the feedback they provide on shooting performance. One device is the Weaponeer, a training aid already in use (see *INFANTRY*, November-December 1980, page 7, and January-February 1981, page 5). The Weaponeer simulates the M16A1 rifle in feel, noise, recoil, and trajectory. In the new marksmanship training program, soldiers who are having difficulty are able to fire shot groups on a Weaponeer. The device provides shot by shot feedback on the location of hits or misses, and even includes a video playback trace of the firer's actual point of aim during the three seconds just before he pulls the trigger. This excellent diagnostic and corrective device can be used day or night in garrison or near a live fire range.

Three Weaponeers are available to soldiers who need remedial instruction at Fort Benning; the Army is now using a total of 28.

A live fire target device with great promise for providing downrange feedback is a newly patented projectile location system (see Figure 5). This system detects any supersonic projectile passing the plane of the target (hit or miss) and provides precise location feedback to the firer through a video display unit. Using this device with a popup target, the firer can get detailed information about the location of his misses and the exact position of his hits. Even the beginning shooter who is missing the target by several feet can correct his errors, while the accomplished shooter can sharply refine his performance by seeing the exact location of his hits.

The value of a projectile location system as a possible replacement for portions of the current Trainfire program needs to be tested for time and ammunition economy. It is clear that the simple hit and miss feedback of the M31A1 mechanisms used in the Trainfire program or the Infantry Remoted Target System (IRETS), the system being tested as a replacement for Trainfire, is inadequate (see *INFANTRY*, May-June 1979, page 40). As long as replacements for marksmanship training equipment are being considered, a projectile location system would appear to be among the most promising candidates for live fire training. Such a system could result in considerable increases in developing field fire skills over what is now possible.

With the adoption of the new entry level marksmanship training program, the ARI research team has turned its attention to advanced individual training (AIT) and to unit marksmanship. The goal is to develop an integrated set of programs that can be used to teach both basic and advanced skills, both individual and group tasks, and both skill acquisition and long term retention.

Those tasks that are likely to receive high priority attention in this research effort are:

- The techniques of engaging moving targets.
- The use of the rifle in a nuclear, biological, and chemical (NBC) environment.
- The techniques of firing at night.
- When and how to use the automatic mode of fire.
- Offensive versus defensive firing.
- The use of the rifle in military operations in urban terrain (MOUT).
- Squad techniques of fire.

The purpose of ARI's marksmanship research since 1976 has been to develop effective alternatives to the Army's standard marksmanship training program. The serious deficiencies in training and performance that we have discovered have changed our research goal for the future to one of finding effective ways to return the U.S. Army rifleman to his former stature as the finest in the world.

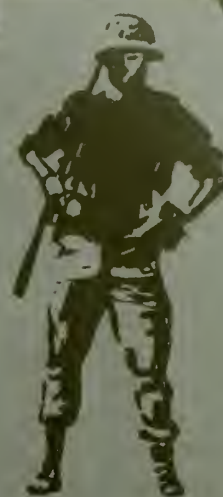
We welcome any comments from readers that will help us to reach that goal. Our address is ARI, P.O. Box 2086, Fort Benning, GA 31905; telephone (404) 545-3734 or AUTOVON 835-3734.



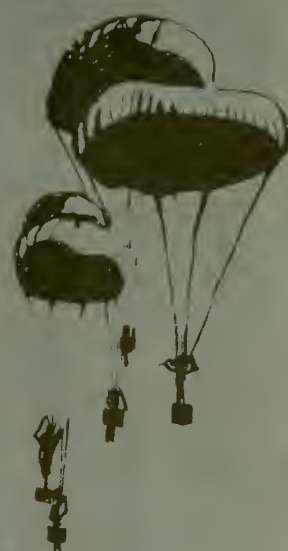
**SEWARD SMITH** is now chief of the Army Research Institute Field Unit at Fort Benning, Georgia, where he has served as a research psychologist since 1976. He holds a PhD degree from the University of Rochester and has been a professor at Florida State University.



**ART OSBORNE** is a retired Infantry officer with 20 years of service including several years with the Directorate of Training Developments at the Infantry School. Since his retirement in 1978 he has been a research consultant for Litton-Mellonics (an ARI contractor).



# PRETESTING the Skill Component



JOAN HARMAN



In a recent letter, General Edward Meyer, the Army's Chief of Staff, said that "readiness to go to war is the purpose of the peacetime Army." And in that same letter he stressed the fact that in the 1980s the training of the Army's enlisted soldiers and of their trainers, the Army's noncommissioned officers, will be given high priority.

The Army now has two prominent tools for measuring readiness in terms of training effectiveness: Army Training and Evaluation Programs (ARTEPs) and Skill Qualification Tests (SQTs). ARTEPs assess collective unit training while SQTs measure individual training.

The SQT system is a relatively new one. Launched in 1977, it is still undergoing development and revision. Its principal instruments are performance-based tests on the tasks that are considered critical to soldiers' jobs — tasks detailed in the Soldier's Manuals. Typically, the tests of individual proficiency are broken down into three components: on-the-job testing (called the Job Site Component), hands-on testing (the Hands-on Component), and written testing (the Skill Component).

The Job Site Component includes such tasks as marksmanship and physical fitness, and supervisors judge their soldiers' proficiency after observing their performance during normal practice sessions. The success rate on this component has been remarkable, with scores of 100 percent common.

The Hands-on Component tests a soldier's actual performance of selected critical tasks, such as operating a field telephone or putting on a protective mask. Success on this component, too, has been widespread.

The written portion of the test, the Skill Component, is the part with which soldiers have the most trouble. This component, therefore, is of great interest to us at the Training Technical Area of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI).

The Skill Component (SC) is made up of those tasks that are impractical, and sometimes impossible, to test in a hands-on form. For example, map reading is a logical candidate for written testing, and recognizing the significance of red ABC-M8 detector paper can be conveniently tested in this form.

One way to account for the lower success rate on the SC may be to look at the difference between the way soldiers commonly prepare for it and the way they prepare for the Hands-on Component. Sixty days before their scheduled testing, soldiers are given an SQT notice that tells them, in considerable detail, about the tasks they will be tested on in all three components. For the Hands-on Component, the SQT project officers are responsible for setting up and equipping test stations for each task that is listed. Then, the soldiers who are to be tested practice the tasks at those same stations. After each practice, proctors tell them whether their performance was successful. When the soldiers finally take this component for record, which they do at the same stations, they are performing familiar tasks in a familiar environment. This is considered good training and an effective way to prepare for the test.

To prepare for the Skill Component, though, the sol-

diers are usually only encouraged to study their Soldier's Manuals. In well organized units, they may also attend classes in which they receive instruction on the material they can expect to be tested on. Even though such efforts must be applauded, it may well be that the best way a unit can prepare its soldiers to take the written test is to do the same kind of preparation they do for the Hands-on Component — to prepare their soldiers to perform familiar tasks in a familiar environment. *That is, the way to prepare to take a written test is by taking a written test.*

## REASONS

There are four reasons why a written pretest for the Skill Component is such a good training device:

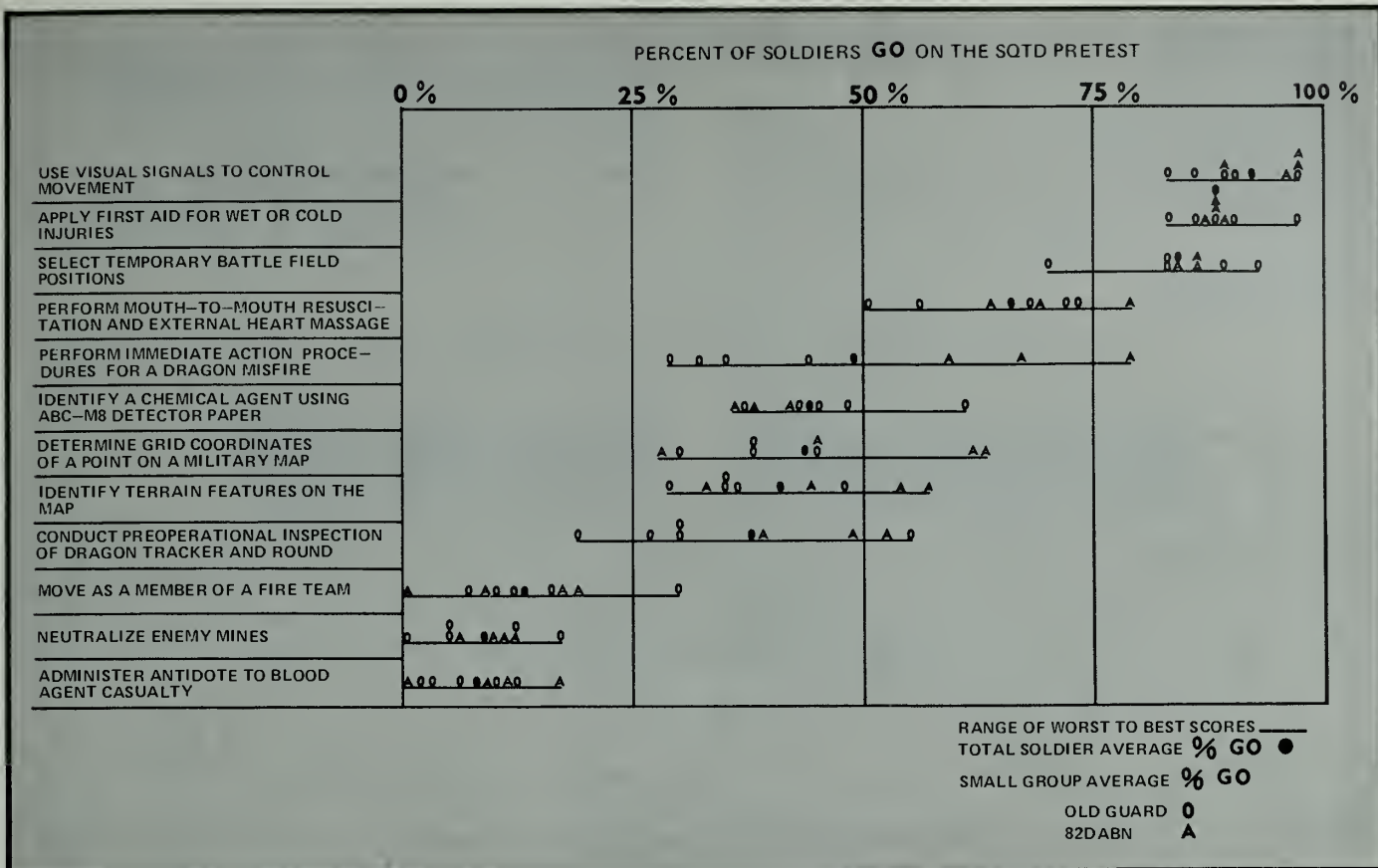
- It can provide immediate feedback on performance in much the same way that soldiers now receive feedback after practicing their hands-on tasks. Thus, the soldiers learn those tasks for which they have to train the hardest.
- The pretest makes the remaining training effort more effective. It identifies the tasks in which rigorous training is not needed, thereby making more time available to train on the other tasks.
- The very process of making up a pretest should remind the trainers of the differences between local practices and Soldier's Manual procedures so that they can emphasize these differences to their troops.
- Pretesting reduces artificial errors in Skill Component scores. As the soldiers become familiar with the computer answer sheets and test format they also become less nervous about taking the test. Their scores will then show job knowledge and not test-taking errors.

During 1980, we training psychologists at ARI made up our own version of a Skill Component from the SQT notice entitled Infantryman (Tracks 1 and 2) SQT 2 MOSC 11B1 and FM 7-11B1/2 Soldier's Manual. Our version was called Skill Qualification Training Diagnostic (SQTD) because we developed it to acquaint both soldiers and their NCOs with those areas in which they needed to concentrate more of their training time and effort before taking the Skill Component.

We gave the SQTD to more than 1,000 enlisted men and NCOs of the 3d Infantry (The Old Guard) at Fort Myer and the 82d Airborne Division at Fort Bragg. We used the same mark-sense answer sheets that were to be used in the SC test, gathered groups in the same kind of classroom settings, and timed the test for the same period of time that would be allotted for the SC test. We also imitated the format of the 1979 written SQT, arranging clusters of task questions in scorable units and heading each cluster with a general situation that described the conditions under which the task would be performed.

After each testing session, we gave the participants the correct answers and provided each of them with a result sheet so that they could leave the session with a record of the tasks on which they would have to do more training.

The important point is that we provided immediate feedback to these soldiers in much the same way that



they received immediate feedback after practicing hands-on tasks. These pretests, then, were not actually testing sessions — they were training sessions. These procedures are only the first step in Skill Component training, but a step that should make the remaining steps easier and more effective.

## FINDINGS

As a result of this project, we made several interesting discoveries. First of all, our test proved to be a fairly good simulation of the 1980 11B1 Skill Component. This development can be accounted for in several ways. Some of the information in the SQT notice was very explicit and we had no difficulty in forecasting the Skill Component questions. For example, one of the tasks — Use Visual Signals to Control Movement — was described in detail.

Then, because the information in the Soldier's Manual on some of the tasks on which the soldiers were to be tested was not long or complex, we were able to cover all of the information with just a few questions. An example of this was the task called Select Temporary Battlefield Positions.

Even in the few cases in which we asked questions that differed from those included in the record test, it seemed reasonable to assume that if the soldiers did not answer those questions correctly, they needed to do more work before they took the formal test.

Our diagnostic pretest also brought to the attention of a substantial number of the soldiers the fact that the doc-

trine in the Soldier's Manuals did not always exactly match common unit procedures. In many cases, soldiers who had felt fairly confident of mastering a task were reminded, during the feedback sessions, that the Skill Component would be based on procedures described in their Soldier's Manuals and that they needed to know more about what was in those manuals.

Finally, we found it wasn't necessary to pretest every soldier in a unit to let the trainers know on which tasks their training efforts needed to be concentrated. This is not to say that it is undesirable to give all of the soldiers who are scheduled to be tested the benefit of a pretest experience. Although that is the best approach to Skill Component preparation, when only a relatively small number of troops can be gathered together for pretesting, it is still possible to predict on which tasks the remaining unit members need to concentrate their training. Similarly, if a small group of soldiers already know a task, it is likely that the others in their unit know it too. This is valuable information for planning the distribution of training time.

This kind of data is shown in the accompanying chart. The tasks listed in the figure are those included in the 1980 Skill Component. They have been arranged in terms of training priorities.

The performances recorded by the troops at both posts revealed that they had much the same training needs. The needs fell into three groups. The three tasks at the bottom of the chart required the most intensive training, while the three tasks at the top were those that both groups knew. The six tasks in the middle section were the



ones that needed attention, but only after the three intensive training tasks had been learned.

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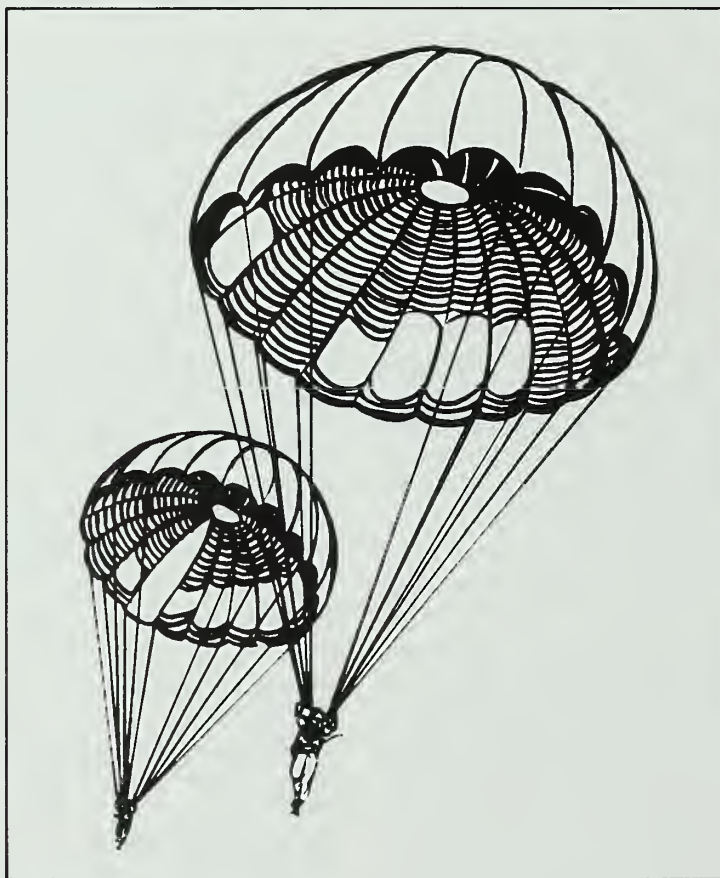
The pretest performances of small groups of soldiers, one with as few as seven soldiers from a single company, also appear in the chart. These groups were not randomly selected to participate; we worked with whatever infantry personnel were available during gaps in their schedules. (A random selection from a unit's troops would detect training needs that even more closely resembled the unit's needs.) Nonetheless, the small groups' training needs resembled those of the other groups and so suggested the same kind of training needs.

There are at least three good reasons, then, for tailoring Skill Component training to actual testing conditions: First, SQT notices offer enough information to allow an SQT project officer or trainer to test the information his soldiers will need if they are to perform well on the Skill Component. Furthermore, a trainer can make up diagnostic pretests from SQT notices and Soldier's Manuals even if he is not an expert in test construction, and the time a unit spends on preparing and giving a pretest will be time saved on remedial training.

Again, the very process of making up a pretest can remind trainers of the differences between local practices and Soldier's Manual procedures so that they can emphasize these differences to their troops. Finally, a relatively small sample of soldiers, preferably randomly selected, can show a trainer which items all of a unit's troops must work on when they are scheduled to be tested.

The Army Research Institute's interest is not in raising scores, although that is the result of using a pretest. SQT scores are merely a reflection of improved job knowledge, and it is improved job knowledge with which the Army is concerned.

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## Update Dragon

LIEUTENANT DARRELL E. POSTON

Never before in the Army's history has there been such a need for highly trained personnel. Certainly this is true of the M47 Dragon antitank weapon. Granted, the Dragon has received some criticism, but it is a good weapon system — if it has gunners who have been trained properly.

The cadre of the Antiarmor Missile Division of the Weapons, Gunnery and Maintenance Department of the Infantry School constantly stress highly professional and up-to-date instruction on the Dragon. A few months ago, an instructional team from the company that designed and developed the Dragon came to Fort Benning and presented a two-week refresher course to these cadre personnel. As a result of that update, many improvements have been incorporated into the Dragon instruction that is given at the School.

The contractor proved without a doubt that if a gunner is trained properly, using the recommended two-week training program, his probability of getting a first-round hit can be increased to 93 percent. The contractor also stressed the fact that the key to producing expert Dragon gunners is dedicated and highly motivated in-

structors. An instructor must be able to demonstrate for the student all of the characteristics that an excellent gunner must have. He must take a personal interest in each student, and he must be able to recognize and identify the traits that are necessary for the development of the gunner's skills and those that must be subdued because they could be detrimental to the development of those skills.

A Dragon instructor must have a thorough knowledge of the system and the training equipment that goes with it. This enables him to provide logical and accurate answers to a student's questions and it permits him to tell the student not only what he should be doing but why it is important for him to do it. The instructor must also understand how the student learns, how he reacts to physical stimuli, the effects of physical and mental fatigue on his performance, and how to recognize that fatigue when he sees it.

The recommended training program requires a total of ten days. In addition, the students receive practice in handling the weapon by training with a field handling trainer. The number of tracking exercises a stu-

dent attempts, though, should be limited to 20 per day for the 10 days of the course. The average student becomes fatigued and develops a sore shoulder after 20 target engagements, and his learning, therefore, decreases.

The number of students in each class is determined by the number of equipped firing sites — instructors, launch effects trainers (LETs), monitoring sets, and trackers — with four students per site being ideal. (Five students should be the most and three the least at any site.) This allows for the most effective use of each student's time.

Although most Dragon training in the past has been conducted at a range of 250 meters, under the new program it is conducted at all ranges. At a range of 250 meters, the differences in tracking rates for different ranges with moving targets were simulated by varying the speed and the time span of the firing exercises. But this technique was unsatisfactory for developing a gunner's ability to do steady tracking.

The first week of the program begins with an introduction to the Dragon system and the training equip-



ment and to the way they operate. This training is "hands-on" as much as possible. The more information a student has about how the weapon and the equipment operate and about their purpose, the more interested and motivated he becomes. The students are also introduced early in the course to organizational maintenance procedures so that they can practice throughout the training program.

Various skills and habits must be assimilated by the students in preparation for live Dragon firing. Although firing with the Dragon training equipment closely simulates firing the Dragon itself, it must be accompanied by highly personalized individual instruction. This instruction must include such things as proper positioning and movement control, breath control, and how to react to temporary obscuration.

If a gunner is to control the missile launch and guidance platform, he must get into and maintain a stable body position in relation to the weapon and must be able to move smoothly when tracking a moving target.

Another important discipline that the Dragon gunner must master is breath control. Aiming the Dragon is similar to aiming a rifle, but the crosshairs must be kept on the target for a period of from one to twelve seconds after the missile is launched. It is therefore important for the gunner to hold his breath throughout the target acquisition, firing, and tracking sequence.

Instructors introduce simulated obscuration during exercises on the launch effects trainer (LET) to show the student gunner that an improper reaction can produce line-of-sight excursions beyond the established error limits. When a target is obscured by such things as launch gases and dust, a gunner's instinctive reaction is to "hunt" for the target. This can cause erratic missile flight or even flight termination. The training must prepare the gunner to freeze on a stationary target when it becomes obscured and to continue tracking a moving target at the established rate

until it reappears.

Some other rather detailed instruction is given to the student:

- The weapon should be pulled down onto the shoulder. An average gunner can pull the round onto his shoulder with about 160 pounds of force. When the 13.6-pound missile is launched, he still has about 150 pounds of force applied and the change is hardly noticeable. But if he lets the missile rest on his shoulder with only 25 pounds of force, when the missile is launched he is left with only about 10 pounds of force. This change is quite noticeable and will probably cause the gunner's shoulder to rise, which in turn will cause the missile to go into the ground.

- The gunner must place his eye in the center of the optical sight and pull the weapon tight enough into his eye that he *cannot* blink. The human eye is trained to blink during an explosion, but this must be avoided, because during that time the gunner doesn't know where he is aiming. Also, if the weapon is tight against his eye, the gunner gets a good picture that he will not lose during launch shock. If his eye moves even slightly in the eyecup, instead of seeing through the prism in the tracker, he will see the prism itself. This will cause his vision to blur, much the same as smoke or heat scintillation, for example.

- The gunner's small finger should be wrapped around the front of the trigger housing to give him added force to pull the weapon tightly into the eye. Although the LET always gives aft recoil, it should be explained that the Dragon weapon itself sometimes gives a little forward recoil. When this happens, the position of that little finger comes in handy.

- When the gunner is firing from a seated position, he should never rest his elbows on his knees. Any leg movement transfers directly to the tracker and the missile reacts to it, as it does to all movement sent to it by the tracker whether the gunner intends that movement or not.

- The gunner must make certain that the safety is completely de-

pressed before he tries to squeeze the trigger. (He should *squeeze* the trigger instead of pulling it.) Since the weapon has almost no recoil, many gunners have a tendency to move more when they squeeze the trigger than when a missile is launched. The LET should be removed from a student's shoulder after each tracking run, and no more than five tracking runs should be grouped together for a single student. A student must be required to track targets that are moving in both directions — that is, left to right and right to left — and at all ranges.

Once these basic habits and skills have been ingrained in the students, the instructors spend considerable time explaining and demonstrating each firing position to them.

## POSITIONS

For the sitting position, the gunner sits with his legs extended so that his feet are against the bipod legs, making sure the heels of his boots do not interfere with the legs of the bipod. His legs should be flat or nearly flat against the ground. He leans forward so that the round rests on his right shoulder muscle; that is, the back side of his shoulder. He holds the round tight against the right cup of his neck and shoulder.

The gunner's back should be as straight as possible while he is leaning forward. This will allow the diaphragm to function properly for better breath control.

His head must be positioned so that his right eye can make and maintain the proper contact with the eyeshield of the tracker. (His left eye must be closed.) He focuses the tracker by adjusting the diopter ring for the best sight picture and then adjusts the eyeshield to fit his face. He must maintain this eye position from target acquisition to target impact.

The gunner's right hand should be on the trigger mechanism with his thumb resting on the safety button and his little finger forward of the trigger mechanism. These positions will allow the gunner to maintain aft



pressure while firing. His index, middle, and third fingers are placed on the trigger lever. The heel of his hand is placed on the base of the trigger mechanism in such a way that the interaction of his fingers and the heel of his hand will allow him to squeeze the trigger lever without imparting force or motion to the tracker or round. When he is firing, he should hold the trigger lever in the depressed position; releasing the hand will cause some involuntary muscle action, which in turn will cause undesirable motion on the round tracker.

His arm is positioned down and in toward his body, and his wrist is placed against the launch tube so that when he pulls down the round is forced into the cup of his neck.

His left hand should grip the sight tube of the tracker, and his arm should be positioned with the elbow pointed toward the body so that the tension that is applied to the tracker or round will equal the force applied by the right hand. He must maintain an even tension of the arm muscle at all times during the tracking. Isometric arm, back, and leg muscle tension must be maintained with such force that there will be no involuntary muscle reaction from the loss of the missile's weight from his shoulder.

The instructor explains to the student the required movements and limitations of the sitting position when tracking moving targets. He demonstrates the proper field of track and limitations and has the student find his own field of track. He has the student fire the LET to experience the tension required. This also provides the student with feedback on his performance as it is evaluated by the monitoring set.

For the kneeling position, the gunner kneels on both knees with the bipod positioned so that he is forced to lean forward to put the eyeshield against his face and to reach the tracker with his hand positioned properly.

The gunner pulls back on the round or tracker so that his buttocks rest on his heels. This causes isotonic muscle control, which helps him to track

smoothly. The instructor stresses the need for the gunner to pull down and into the eyecup.

The instructor then demonstrates the standing supported firing position and has the student get into it. With the student standing in a "foxhole" or behind some type of support, the bipod is placed out in front of him on the ground or on a support at such a distance that the student has to reach for the round as he did in the kneeling position. His feet should be placed



apart so that he can maintain the best body control. Where it is practical, the student should lean against the front of the foxhole, thereby supporting his body from the waist down. This provides a good stable firing position. The other limb and head positions previously described also apply for the standing position.

Even though the student is taught all of these firing positions, he should be told from the beginning that the sitting position is the best because it is the most stable. If he understands this, he will start adapting to this position instead of trying to alter it.

Throughout this week of practical training, continual feedback must be given to the student to prevent him from forming undesirable habits or to eliminate any that he may have formed.

In addition, the instructor should take note of the student's mental attitude and personality during this period to make sure he is properly motivated to attain a high degree of expertise with the Dragon.

During the first week no cartridges are used when the students are using the LET. Each student conducts about 10 stationary tracking runs, which allows him enough time to learn the proper firing positions and to experience some monitoring set hits before he is subjected to moving targets.

The second week is a continuation of the first week's practical exercises, but in greater depth and with more emphasis on firing discipline.

The motor skills that the gunner must use in employing the Dragon effectively are further identified during this week. The instructor demonstrates each step in preparing for the engagement of a target (target acquisition, range assessment, target track) and has the student practice them. The instructor also further discusses and demonstrates the pros and cons of each of the firing positions.

Again, the target engagements are made without cartridges to allow the student to concentrate on position, sight picture, and his area of track without the distraction of blast and recoil, including a variety of target conditions and gunner positions.

The importance of viewing through the tracker is emphasized, because the tracker not only magnifies the object, it magnifies the gunner's motion. The student should experiment with the various diopter settings to achieve the best sight picture. A blurred image will not provide accurate aim points or be as effective in showing gunner motion. In short, the better the sight picture, the better the student can track.

The instructor explains the proper procedure for adjusting the bipod:



The student removes his feet from the bipod (in the sitting position), raises the round off the ground (so the bipod legs can spread) with this right hand, and makes the height adjustment with his left hand. The instructor also has the student make leg extension adjustments as required and explains the importance of having the tracker reticle level.

In the final phase of the two-week training program, the emphasis is placed on developing the student's technical knowledge. In a conference demonstration environment, the instructor gives a detailed description of the launch effects trainer, identifying its component parts and their functions. This provides the student

with an appreciation for the care and treatment of the LET.

Then the instructor describes and demonstrates in more detail the required organizational maintenance, which was introduced in the first phase of the training program, and has the student practice it.

The Dragon training cadre at the Infantry School sincerely believe that this training program, with its recommended instructor concepts, will produce highly qualified and effective Dragon gunners. All units are strongly encouraged to use it. (Additional information on the program can be obtained from the Antiarmor Missile Division at (404) 545-3069 or AUTOVON 835-3069.)

Again, the Dragon is a good system, in spite of the criticism that has been leveled at it. All it needs is gunners who have been trained properly and with this training program, they will be.

**LIEUTENANT DARRELL E. POSTON**, an Infantry officer, is a 1978 graduate of the University of Toledo and has served as a platoon leader, a company executive officer, and as a Dragon instructor at the Infantry Training Brigade at Fort Benning. When he prepared this article he was assigned to the Antiarmor Missile Division of the Weapons, Gunnery, and Maintenance Department of the Infantry School.

# The BOTSBALL

MAJOR DAVID E. JOHNSON

When a military unit trains in a hot environment, its leaders must face up to and overcome a number of unique environmental problems if the unit is to successfully accomplish its mission. Recent field exercises, for example, have demonstrated conclusively that when the temperature is high, normal logistical and equipment maintenance functions are particularly difficult to carry out.

Of probably even greater concern to a unit's leaders are the adverse effects high temperature can have on the soldiers themselves. If the soldiers are cooped up for lengthy periods in armored vehicles or wear their vapor-impermeable protective clothing for long periods of time, they can well suffer degrees of heat stress that can sharply reduce their effec-

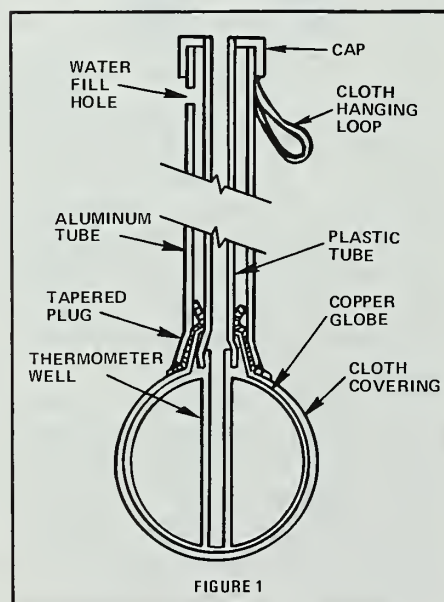
tiveness or even incapacitate them.

A unit's leaders, therefore, must

do all they can to keep their soldiers from being exposed to excessive heat stress.

In the past, the Army relied primarily on a leader's common sense to determine the level of training that could be conducted at various combinations of air temperature, wind, humidity, and solar radiation. Now, a centralized Wet Bulb Globe Temperature (WBGT) index has been established to guide commanders in taking such proper preventive measures as decreased work rates, modification of the duty uniform, or increased rest and water requirements when a unit is in garrison.

But when a unit moves to the field, this guide may not be available. Even when it is, it is only an averaged index that covers a wide area, or it requires



WORK-REST REGIMEN	WORK LOAD					
	LIGHT		MODERATE		HEAVY	
	°F	°C	°F	°C	°F	°C
CONTINUOUS WORK	80.4	26.9	75.8	24.3	73.2	22.9
75% WORK – 25% REST	81.2	27.3	77.6	25.4	74.6	23.7
50% WORK – 50% REST	82.3	27.9	79.6	26.4	77.5	25.3
25% WORK – 75% REST	83.3	28.5	81.9	27.7	80.4	26.9

FIGURE 2

the use of a three-thermometer, slide-rule calculation kit (Nomenclature: Wet Bulb Globe Temperature Kit, NSN 665-00-159-2218).

To overcome this problem, the Army has adopted a recent industrial development that will help a unit commander to assess the prevailing climatic conditions in his training area. This is the Botsball thermometer (Wet Globe Temperature Kit, Botsball type, mechanical, NSN 6665-01-103-8547). It is about 20 centimeters long and weighs less than 150 grams. It has a single dial reading instead of the three mercury gradients required by the WBGT kit and does not require any mathematical manipulation. Its dial is color-coded to correspond to the familiar "Heat Alert Categories."

The Botsball has been extensively compared with the WBGT index and correlates well with it and also with observed strain on soldiers. In addition, the single dial allows for a faster response to changing environmental conditions than does the more expensive and more fragile portable WBGT kit.

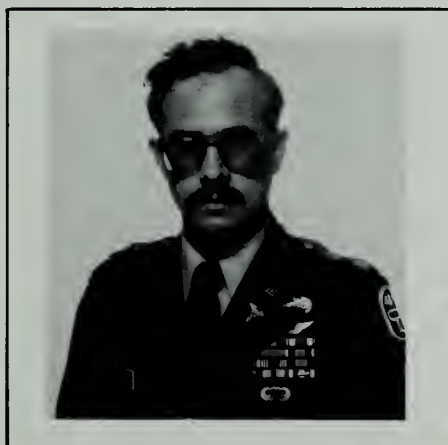
The construction of the Botsball thermometer is illustrated in Figure 1. Five to seven cubic centimeters of water are introduced into the neck of the thermometer so that the cloth

covering of the globe will act as a wick. In windless conditions, such as those within an APC or tank, it may take 10 to 15 minutes for the Botsball thermometer to reach equilibrium. In moving air or in direct sunlight, as in the open desert, for example, it may reach equilibrium in five minutes or less. Under any conditions, the temperature should remain stable for one minute before a reading is taken. In most environments, the thermometer will not need to be refilled with water for more than an hour.

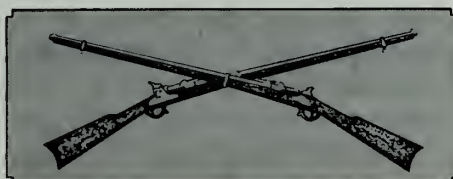
The prevention of heat injuries, of course, requires more than just making commanders aware of the severity of the local heat conditions. It is also important to provide the men with adequate drinking water, acclimatization, and a high level of

physical conditioning. But how quickly a unit needs to perform a particular job or reach a certain objective may be the one variable that can be modified on the spot within the constraints of a particular mission.

Some guidelines to the level of activity that should be allowed at various WGT readings are given in the table in Figure 2. The color-coding on the WGT dial is also a guide only. The commander must make the final decision on the activities of his troops; he knows full well that accomplishing the mission is his paramount concern. The Botsball thermometer does provide him with some valuable information that he can use, in the words of the Army Medical Department, "to conserve the fighting strength."



**MAJOR DAVID E. JOHNSON**, who holds an MD degree from the University of Minnesota, is now assigned as Preventive Medicine Officer at Fort Benning, Georgia. He previously served at the Walter Reed Army Institute of Research and as a Research Physician in Thailand.





# PAST TIMES



## CHEMICAL AGENTS IN WAR

(*Mailing List*, Volume XVI, 1938)

The employment of chemical agents of any sort may have an important influence on tactical operations. In some cases, either smoke or gas, if used in assistance of one unit, may operate to the serious disadvantage of another. It is considered, therefore, that chemical missions, including decision as to the general classes of agents to be used, should be coordinated and prescribed by the commander of all troops concerned.

Gas is mainly a weapon to be used against personnel. Since this is so, and since infantry comprises the bulk of the Army, all infantry officers should understand the powers and limitations of war chemicals. It is only with this knowledge that protective measures can be devised and applied. General John J. Pershing summed the matter up tersely in his final report as commander of the A.E.F. He said: "Whether or not gas will be employed in future wars is a matter of conjecture, but the effect is so deadly to the unprepared, that we can never afford to neglect the question."

## PANIC

(*Mailing List*, Volume VIII, 1933-1934)

Panic seems to split logically into two separate phases. The first consists of the gradual building up of a tense psychological state of mind. Outwardly this is characterized by excessive nervousness, a marked growth in wild and pessimistic rumors, and a heightened sensitivity to all external stimuli. More recondite symptoms include a loss of faith in leaders, a hostile and questioning attitude toward orders, a quickened imagination, and a profound pessimism.

The causes that induce this mental state in a military unit are many and varied. Defeat, for instance is one of the unavoidable fortunes of war; when two armies clash one must lose. Unfortunately, defeat carries with it more than lost terrain and long casualty lists; it sows the seed of distrust in the fertile soil of the private soldier's brain; it implants the idea that the enemy may be physically superior to him and mentally superior to his leaders. It is easy to lead victorious troops to fresh victories but only intelligent, understanding, and potentially great leaders can carry a defeated force through to triumph.

Once panic has started, it is almost impossible to stop it. Leaders are powerless. Indeed history records few instances of panics that were stopped before they ran their full course.

The time to stop this group madness that feeds on fear is before it begins. The astute leader, even in the face of

repeated disaster, will find ways and means of retaining the confidence and trust of his men.

The problem is delicate and difficult. The leader's path is beset with a thousand pitfalls. There are few rules to guide him. Common sense, a sympathetic understanding of his fellow man, and a calm, cheerful, confident demeanor will prove his staunchest allies.

## EATING YOURSELF TO DEATH

(*Infantry School Quarterly*, January 1955)

Is your wife crazy about calories . . . demented over diets . . . nuts about nutrition? Does she pile your plate with potatoes and steak while she nibbles on raw string beans? Do you laugh at her "skinnier-than-thou" attitude, and poke fun when she switches from lemon juice and lettuce to corn flakes and yoghurt? Have you asked yourself whether it is vanity — or partly common sense?

And incidentally — have you seen yourself in a bathing suit lately?

If your trousers "shrink" every time they are laundered — if you are beginning to overlap the bathroom mirror — if you are not on nodding terms with your own knees — it's time to face the facts about your figure. Too many officers, tied to sedentary peacetime jobs, have begun to assume the shape of the chairs they sit in. Too many strategists are trying to translate "the big picture" and the "triangular concept" into purely physical terms. Their talent goes to waist.

No soldier, no leader of soldiers, can afford those extra pounds.

What happens to the overweight officer when war explodes overnight, as it did in Korea? About six months after the police action began, word reached the States that many officers over 35 were not able to keep up with their men, that younger battalion and regimental commanders were needed. Not that the younger men were more able — the older officers, veterans of World War II, learned their job in a hard school. But they just couldn't make that hill!

Not until older officers began to trim down before even leaving the States did they prove the combat value of their experience. What good is it to have the know-how to lead a company or battalion if, physically, you cannot even follow it?

The next war will probably come upon us as abruptly as the last. Would you be in condition to take a combat command — tomorrow?

# ENLISTED CAREER NOTES



## FROM THE BRANCH CHIEF

During the past several months we have received an increasing number of comments from commanders and command sergeants major about the need to improve the quality control of involuntary drill sergeant selections. By far the vast majority of our "drills" are truly outstanding; it's the two percent who have problems with profiles, weight, and PT tests who become the subject of calls and messages from the field. When we look for the source of the breakdown in the system, we find that in most cases the disqualifying factors had not been apparent to us because the soldiers' records had not been updated.

To help solve this problem we have begun sending two letters to battalion commanders. The first informs them of the prerequisites that the potential drill sergeant must meet and asks for their help in our quality control efforts. If a soldier has a disqualifying problem that is reported by the commander, we will not admit him into the program.

The second letter, which we ask the commander to present to the potential drill sergeant upon selection, is a letter of congratulations from the Director of the Enlisted Personnel Management Directorate. We are hopeful that these changes will make a good program even better.

With this issue of the magazine, we say goodbye to SFC Larry Bergquist, who has been the E7-E8 professional development NCO. We welcome SFC Danny R. Cline, who recently joined the Branch to work with SFC Riggins on E6 professional development.

Included below is an article prepared by Sergeant Major of the Army William A. Connelly on the enlisted

promotion system. This article provides an excellent summary of our current system, and it will benefit all NCOs.

**LTC ROBERT J. GRAHAM**

## PROMOTION SYSTEM

Some NCOs may think that they have very little to do with the promotion system. A common attitude is, "Why bother? We don't promote soldiers, DA does." But DA does not put soldiers on a promotion list or take them off; squad leaders, platoon sergeants, section chiefs, first sergeants, and commanders decide whether a soldier should be recommended for promotion or not. And once a soldier is recommended, he appears before a board that, in most cases, is made up of NCOs and includes a command sergeant major as president.

Because NCOs do have so much to do with promotions, they need to know as much about the system as they can.

The most widely misunderstood part of the system of promotions for the ranks up to corporal is the need for constraints. Because the Army is limited as to the number of soldiers it can have in the rank of corporal, units are also limited as to the number of soldiers who can be promoted.

In addition, we sometimes tend to forget what the "normal" time for promotion is. A soldier has to have 24 months time in service before he can be promoted to corporal; it takes a waiver to promote him earlier. This is based on Department of Defense directives, not on arbitrary DA policy.

In the next two grades, a soldier

should be promoted when there is a vacancy in his MOS, assuming he is the best qualified (measured by promotion points) Army-wide in that MOS. Once the company's NCOs or the commander recommend a soldier for promotion, his order of merit is determined by promotion points. Here again, the NCOs and the commander influence the soldier's promotion because they can award 80 percent of the total points available. NCOs, for example, prepare evaluation reports that reflect the manner in which the soldier has performed (150 points). NCOs train the soldier, and his training is reflected in his Skill Qualification Test Score (50 points). NCOs recommend and select soldiers for individual training and civilian education (200 points), and encourage them along the way. Finally, NCOs are members of promotion boards (250 points). Thus, NCOs and commanders control or influence 800 of the possible 1,000 promotion points.

So why isn't a soldier promoted as soon as his promotion points are known? First, he may be selected for promotion three months before he has the required time in service for promotion. Once the NCOs have selected a soldier for promotion and the total number of points is known, reports are submitted that reflect the number of soldiers on the promotion lists, their number of points, and in which zone and MOS.

These world-wide reports arrive at DA about the middle of the month following the month in which the soldier appeared before the board or his recomputation month. At this point, MOS and grade vacancies are computed. The total number of promotions for a particular grade (regardless of MOS) is determined by com-



paring the number projected to be in that grade against the number allowed in the Army budget for the month in which the promotions are to be made. The projection includes losses, those promoted into and out of the grade, and reductions. Available promotions are distributed to MOSs on the basis of percentage of fill.

The point is that promotions go to the MOSs with the greatest need first, increasing the percentage of fill for all MOSs until the available promotions are exhausted. Secondary zone or waiver promotions are limited, so they go to the MOSs with the greatest need after the primary zone promotions are distributed. At this time — which is one or two months after the soldier appears before the board — the soldier's number of promotion points comes into the process. For example, if the vacancies and the budget permit the promotion of 100 soldiers from the primary zone of a particular MOS, a promotion cutoff score is established by going down the scores until the 100 limit is reached.

In other words, if the top 100 sergeants in an MOS have 716 or more points, the cutoff score would be 716. Or if the top 100 have 796 or more, the cutoff would be 796. If a cutoff score for a particular MOS is high (886 for staff sergeants), that means that the available promotions went to soldiers in MOSs with a lower percentage of fill. In summary, the three months waiting time is necessary for the soldier's actual number of promotion points to be considered when the cutoff score is established.

Soldiers are selected for promotion to the ranks of PSG/SFC to SGM/CSM by DA boards, and commanders, in effect, have veto authority with the removal process. Eligibility zones are established for each board on the basis of the number of selections to be made (projected vacancies, the time in grade of the serving population, and the desired selection rate). For example, if the number to be selected is 100 and the desired selection rate is 33 percent, the zone

would be set so that 300 soldiers will be considered by the board.

It is significant that projected vacancies are determined by career management field (CMF), and each soldier competes only with others in his CMF for the promotions available for that CMF. Again, the CMFs with the greatest number of vacancies receive more promotions.

Selection boards use the "whole person" concept. What that really means is that the board members evaluate the entire official record (located at Fort Benjamin Harrison, Indiana) of the soldier to determine who is best qualified in each CMF. The members are divided into panels, and they evaluate the records of the soldiers in designated CMFs. (Each board member does not review the record of every soldier in every CMF but does review the record of every soldier reviewed by the panel he or she sits on.)

Another common misunderstanding is the idea that soldiers with college degrees will automatically be selected for promotion to the next higher grade. When all else is equal (performance and other factors) and only one selection can be made, education may be the reason for one soldier's being selected over another. Again, the NCO leadership has a responsibility. We should make sure the record truly reflects the "whole person," good or bad. Reviewing each soldier's official military personnel file (OMPF) is most important, and the review should be conducted at least 90 days before the board convenes.

The U.S. Army Enlisted Records and Evaluation Center continues to receive unauthorized letters of recommendation for promotion from commanders and supervisors. The provision that authorized the submission of these letters was rescinded effective 1 April 1979. A soldier in the primary zone of consideration may write directly to the president of a promotion board bringing to the board's attention any matter he thinks is important concerning the review of his record and his manner

of performance. But third party letters of reference and recommendation are not permitted, and such inclosures will not be referred to the board.

Inquiries should not be sent to the president of any board once the deadline announced in the zone message has passed; there is no staff available to provide answers. The large volume of these letters, along with the volume of official mail, causes considerable delays in those official documents, since all mail must be screened.

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## EDUCATIONAL INCENTIVES FOR REENLISTMENT

Congress has authorized DOD to conduct a test during FY 1981 providing an educational incentive to aid in reenlisting or retaining soldiers. The Army portion of the test, which is expected to be implemented this summer, will provide qualified first term soldiers who reenlist for the Overseas Reenlistment Option-Europe with \$8,100 in educational benefits, at no cost to the soldier.

The monetary benefits under the Educational Assistance Test are:

- DOD contributes \$75 monthly to a VEAP (post-Veteran's Educational Assistance Program) fund, which is opened in the soldier's name when he reenlists.

- The Veteran's Administration will provide matching funds at the rate of \$2 for each \$1 that DOD contributes and will manage the fund.

- The maximum contributions will be \$2,700 from DOD and \$5,400 from the VA for a total of \$8,100, which will be available after the expiration of the term of service for which the soldier reenlisted. Benefits will terminate 10 years after the soldier is discharged or released from active duty.

To be eligible for the test, a soldier must be a high school or GED graduate, must be in his first term of service, must not have entitlement to the Vietnam era GI Bill, and must be PMOS qualified in accordance with

paragraph 2-28, AR 601-280. Further, he must have a skill that is authorized a Zone A Selective Reenlistment Bonus and must meet the reenlistment criteria of AR 601-280. Additionally, the soldier must reenlist for Europe under Table 4-4, Overseas Area Reenlistment Option-Europe, AR 601-280.

The soldier may transfer all or part of the educational entitlements to his spouse or dependent child. This transfer may be revoked at any time.

Payment shall be used for educational expenses at an accredited institution in the United States (including the District of Columbia, Puerto Rico, Guam, and the Virgin Islands) that gives instruction at the college or technical school level.

## RANGER VACANCIES

There are presently Ranger vacancies in the 1st Battalion (Ranger), 75th Infantry, at Fort Stewart, Georgia, and in the 2d Battalion (Ranger), 75th Infantry, at Fort Lewis, Washington. These vacancies are primarily for soldiers in the following ranks and MOSs: PV1-PFC, 05B, 11C; PFC-SSG, 11B; SGT/SP5-PSG/SFC, 13F; SSG, 31V, SSG-PSG/SFC, 94B.

To be eligible, a soldier must be Ranger-qualified or must volunteer for Ranger training and submit a DA Form 4187 requesting assignment to the unit of his choice. Applications or volunteer statements must be forwarded through command channels to DA MILPERCEN, ATTN: DAPC-EPK-IS, 2461 Eisenhower Avenue, Alexandria, VA 22331. Branch points of contact are SFC Kinsley or Mrs. Dansby, AUTOVON 221-8340/9568.

## RECORDS UPDATE

Personal data on soldiers that is provided by their installation MILPOs through SIDPERS entries are used by MILPERCEN to assign soldiers worldwide. Each soldier can influence the quality of his assignments

by making sure that his DA Forms 2 and 2-1 and his DA Form 2635 are updated periodically in accordance with local standing operating procedures.

## SPECIAL FORCES LINGUISTS

Special Forces (SF) qualified soldiers and SF volunteers are reminded that they should establish their aptitude for foreign language training by completing the Defense Language Aptitude Battery Test (DLAB).

## OE COURSE

After careful evaluation and analysis of a pilot program, DA has announced its decision to retain NCOs as an integral part of the Organizational Effectiveness (OE) Program. Specially selected NCOs will be sent to Fort Ord, California, where they will attend an integrated (officer/NCO) 16-week course of instruction in management and the behavioral sciences at the Organizational Effectiveness Center and School.

The skills the students are taught at the school will equip them to help commanders and managers throughout the Army to meet the challenges of OE and Army preparedness and to increase their own responsibilities and effectiveness during their careers.

The NCOs who are chosen to attend must:

- Be volunteers in the ranks of PSG to SGM/CSM (waivable for SSGs).
- Be proficient in primary MOS.
- Have promotion potential.
- Have two years of college (desirable, but not mandatory).
- Be interviewed and recommended by an OE officer.
- Have twelve-month retainability after training.
- Be selected and approved by MILPERCEN.

NCOs usually attend the course

TDY enroute on a PCS or TDY and return to their parent organization. Graduates are assigned to valid OE positions for a single tour and then are assigned in their primary specialties in accordance with Army priorities. Re-utilization in successive tours normally does not occur, but can be considered on a case-by-case basis.

Anyone who is interested in attending the Organizational Effectiveness Officer/NCO Course should contact his local MILPO or MILPERCEN, ATTN: DAPC-EPZ-P, 200 Stovall Street, Alexandria, VA 22332; telephone AUTOVON 221-8317/7692.

## BASIC TRAINING

A longer and tougher basic training (BT) program has been developed and is being implemented at Fort Knox, Kentucky, and at Fort Leonard Wood, Missouri. The remaining five TRADOC BT centers will begin using the new program by October.

The new program increases BT by 97 hours, which means eight weeks instead of seven and more hours of training each day.

The emphasis of the new program is on improving physical conditioning, but time is also being added to existing training in weapons familiarization, individual tactical training, marches and bivouacs, NBC defense training, and rifle marksmanship. In addition, new blocks of instruction have been added, including a course on the Soviet soldier.

The new program was designed to turn out soldiers who are in better physical condition, better trained, and better disciplined. The tougher physical demands will also be carried over into the second phase — advanced individual training — and during FY 1982, recruits who enter One Station Unit Training (OSUT) will also face a longer and tougher course.

All five OSUT installations will increase their training programs by one week. About 60 percent of this in-



crease will be applied to MOS qualification skills, because many of the new weapon systems that are scheduled to enter the Army's inventory in the 1980s will require additional training. The remainder of the increase will be devoted to the basic soldier skills.

## OCS SCHEDULE

The following is the tentative schedule for the Army Officer Candidate School Program for Fiscal Year 1982:

CLASS	CLASS DATES
1-82	15 Nov 81 - 11 Mar 82
2-82	10 Jan 82 - 20 Apr 82
3-82	14 Mar 82 - 22 Jun 82
4-82	25 Apr 82 - 3 Aug 82
5-82	8 Aug 82 - 17 Nov 82

Anyone who is interested in applying for one of these classes should call his local military personnel office for details and local suspense dates.

## FIRST SERGEANTS COURSE

The Army has developed a course for first sergeants that is designed to improve their effectiveness as the company's top noncommissioned officer. The course, about eight weeks long, will be held at Fort Bliss, Texas.

First sergeant designees (sergeants first class and master sergeants) are eligible to attend. NCOs who are presently serving as first sergeants and who have been on the job for 12 months or less are also eligible to apply for the new course.

The U.S. Army Sergeants Major Academy at Fort Bliss has begun preparations for conducting the first class beginning 5 October. Current plans are for five classes during Fiscal Year 1982, with 60 Active Army soldiers attending each class. Future plans call for 180 students per class.

The course focuses on the first sergeant's role as a trainer of soldiers. Other instruction will include unit administration, combat, logistics,

unit security, discipline, esprit de corps, and solving soldiers' problems. The course's instructors will have first sergeant experience and will themselves be graduates of the Sergeants Major Academy.

Eligible NCOs who want to attend the course should contact their immediate commanders for procedures on applying. Soldiers should apply through their major commands rather than directly to MILPERCEN.

## CAREER MANAGEMENT

Career counseling is important when a soldier is faced with making some tough decisions on reclassification or reenlistment out of an MOS. Things like promotion potential and professional development must be carefully weighed before a final decision is made.

DA Circular 611-81-4, Career Management of the Enlisted Force, which replaced DA Circular 611-80 on 1 May, contains some new features in its Appendix A that will make the selection process much easier. Appendix A now reflects the Army's needs for enlisted soldiers by grade and MOS rather than by years of service (YOS) as before.

In addition to replacing YOS with grade, the Appendix A format includes "In" and "Out" columns for each grade. The need in each MOS is reflected through codes — "Y" for yes, "N" for no, and "NA" for no authorization — that provide the entry/exit status of both the new and the old primary MOS (PMOS).

The new format will help personnel staff NCOs counsel soldiers on their career enhancement possibilities. By looking at the needs of a soldier's current grade and the needs of the next higher grade (in both the old and the new PMOS), the personnel NCO can advise the soldier on alternative MOSs as they relate to career development opportunities.

Commanders will be able to help soldiers more and play a larger role in shaping the force by using Appendix

A to counsel their soldiers. For example, when a commander knows that some of his soldiers are not progressing because they are in an over-strength MOS, he can help the soldiers and the Army by recommending several MOSs for which they are qualified and which have a "Y" in the entry column. This way the commander can help align MOS strength with Army requirements and also help in the professional development of his soldiers.

## RECRUITER SELECTION

The Army has a new system for selecting soldiers for recruiting duty. MILPERCEN now has charge of selecting and accepting volunteers for the recruiting program, and is already working on some changes in the selection process.

U.S. Army Recruiting Command selection teams are no longer going to the field to interview applicants. The process now begins at the company level for those who want to volunteer for recruiting duty. An interested soldier must send his request to his battalion commander (or the equivalent). The request then goes to the local military personnel office and then to MILPERCEN to make sure that the soldier meets the selection requirements. Also, platoon sergeants and sergeants first class are no longer being selected for recruiting duty.

The new selection process involves the chain of command to a greater extent, both in accepting volunteers and in making involuntary selections. With the old selection teams, often a soldier would volunteer for recruiting duty and his chain of command would not know about it until the soldier's orders arrived.

Other requirements for selection remain unchanged. Notification of involuntary selections by MILPERCEN will go through the battalion commander for forwarding to the soldier.

# OFFICERS CAREER NOTES



## BRANCH CHIEF'S NOTES

Our Infantry team recently visited the Infantry Center where we spent four complete days interviewing, counseling, assigning, and briefing Advanced Course, Basic Course, and permanent party Infantrymen. We were very impressed with the positive attitude of all the officers at Fort Benning and departed with a great feeling that our Infantry soldiers around the world will be in the hands of good leaders.

To these officers, I'd like to say that I hope we answered your questions and provided you an opportunity to look at your future as you examined the information we left with you. Our purpose was to explain to you how we go about filling Army requirements and to work out with you a set of goals, both short and long term. With this information, you should be able to map out a five- or even ten-year career pattern that spans initial specialty qualification, additional specialty designation, nominative assignments, and both military and civilian schooling. If you encounter any questions as you plan, or if your goals change for any reason, consult your commander and Infantry Branch for assistance and advice.

To those of you who are just entering Active Duty and the Infantry, welcome aboard. We are proud to have you as fellow Infantrymen. Your job as a platoon leader will be very challenging, but the Infantry School will equip you with the management and leadership tools you need to tackle your assignments. Infantry Branch will visit with you during your stay at Fort Benning. Keep track of your questions as you go along and we will answer them.

Here are some recent actions in

which we need the help of the officers concerned:

**Year Group 74 Additional Specialty Designation.** We have just received all preferences from Infantry officers who came on active duty in 1974. The process of designation is now in effect and soon you will be notified of your additional specialty. Year Group 75 will be next, so begin planning to submit your four preferences in order of priority.

**Battalion Level Command Slating (CY 1982).** Congratulations to the lieutenant colonels and promotable majors who have been selected for battalion command, both principals and alternates. We are now working on a plan for each of you toward your assumption of command. If we haven't talked to you please contact us and help us develop your plan to attend your pre-command courses, language school, and so on.

**Military Schooling.** We are planning trips for this fall to the Command and General Staff College, Armed Forces Staff College, and various other senior service colleges. Our purpose will be primarily to make sure that we know your desires for follow-on assignments and to explain the assignment procedures, which include special distribution plans for your various classes. Now is a good time to forward your preference statements outlining your professional desires and personal considerations. For those of you who are entering zones of consideration for military schooling, it is time for your preference statements to be sent in. These statements are provided to the slating board along with Branch recommendation. Too many records go to slating without the individual's preference, because the statement was not available to forward.

We hope that all of you in the Infantry will keep abreast of the rapidly changing personnel efforts involved in our quest for stability and cohesion. You need that information to develop your plans for the future. Some of these efforts are the All Field Grade Regular Army, the developing Regimental System, and DOPMA. We will advise you and your commander, as these developments unfold, on where you fit into the picture.

This issue will find many of you on the road, or in the air, between assignments. If you are anywhere near us, it is an excellent opportunity for you to visit Infantry Branch and review your official file. As with any organization, we too are changing personnel. By October we will have five new assignment officers in the Branch and they need to visit with you, too.

Good luck in your new assignments and congratulations to those of you selected for command or to attend various military schools.

**LTC JAMES A. SULLIVAN**

## PROMOTION BY SPECIALTY

The Lieutenant Colonels (AUS) and Colonels (AUS) promotion boards held in March employed the promotion by specialty program, recommended by the Chief of Staff of the Army, and approved for implementation starting with the 1981 boards. Promotion by specialty affects the Lieutenant Colonels and Colonels boards only; requirements for promotion to major and below can be controlled through the commissioning and second specialty designation process.

Under the promotion by specialty



program, the current 15-member, 3-panel boards will be retained. The board membership will still be provided by the major field commanders and will be representative of the specialties and the component of the population being considered.

Officers will still be selected on the "whole man" best-qualified concept, which will result in an overall board standing from which minimum selections in each specialty will be required of selection boards. Mandatory floors, and ceilings when necessary, will be provided for all specialties. These floors will be met by the selection of those who are best qualified in each specialty, and the balance of the promotion capability will be selected from those remaining on the basis of "whole man" best qualified, regardless of specialty until the promotion capability is exhausted.

#### RA INTEGRATION (DOPMA)

Under a provision of the Defense Officer Personnel Management Act (DOPMA), all field grade officers (promotable captains and above) on the active duty list will be administratively integrated into the Regular Army. The basic criteria are that an officer must be:

- A citizen of the United States.
- Able to complete 20 years of active commissioned service before age 55.
- Of good moral character (not flagged in accordance with AR 600-31).
- Physically qualified for active service (have current physical IAW AR 40-501 and have no known changes in physical condition since last physical).
- Fully qualified for promotion (not currently in nonselect status; not applicable to nonselects for colonel or general).

Regular Army lieutenant colonels may remain on active duty for 28 years and RA colonels for 30 years. RA majors under DOPMA will not have tenure. USAR officers are re-

quired to leave active duty upon completion of 20 years of service or upon reaching the maximum age.

Officers who are integrated into the Regular Army under DOPMA will incur no additional service obligation as a result of accepting an RA commission, but such officers may be subject to PCS moves because of a change in mandatory release date (MRD) status.

During reduction in force actions, RA officers are not normally eliminated or reduced in grade. These actions, should they be required, would therefore fall heavily on the remaining OTRA (other than Regular Army) officers on the APL. Under DOPMA, RA captains and majors not selected for promotion will be eligible for selective continuation; those officers who decline RA status will not be eligible for selective continuation unless authorized by the Secretary of the Army by separate action.

Officers who decline Regular Army integration or who are not offered an RA commission, may continue on active duty in a Reserve status until first eligibility for retirement, unless separated earlier for other reasons. Requests for service extensions beyond the point of first eligibility for retirement for those who decline an RA commission normally will not be approved. This provision does not apply to officers who remain on active duty to complete service obligations.

Eligible officers who initially decline RA integration may subsequently apply for it at a later date if they are still eligible. If an officer accepts RA integration, he will be appointed in his current AUS grade, and his date of rank will be the same as his AUS date of rank. Promotable captains will be appointed to the Regular Army on the same date as their promotion to major.

This integration action will be totally administrative; there will not be a selection board process.

The officers who are affected by DOPMA fall into two principal categories: Those who are on active duty as of 15 September 1981 when

DOPMA becomes effective, and those who report to active duty after that date.

OTRA officers on active duty before 15 September will be offered RA integration upon their selection for promotion to major. If they decline, they will continue on active duty as OTRA officers under the provisions of existing law.

This provision will remain in effect for another 10 years until all officers who are on active duty before 15 September 1981 are considered for promotion to major.

OTRA officers who report to active duty after DOPMA goes into effect will be subject to the DOPMA provisions: They may request integration between two and nine years of service. They will be offered RA integration upon selection for promotion to major. Officers who decline RA integration will be separated within 90 days after they decline.

Initial RA accessions will continue from USMA and ROTC. MILPERCEN has permission to start initial RA accessions through Officer Candidate School as well. RA accessions are expected to grow from the current 2,550 per year to between 2,800 and 3,000.

OPMD has already mailed letters to eligible officers and by mid-July they should have been returned. If an officer fails to sign and return the written request for RA integration, it will be assumed that he does not accept this integration action.

#### OFFICER ADVANCED COURSES

The following are the officer advanced course schedules for Fiscal Year 1982. There will be five to ten Infantry officers attending each of the Armor and Field Artillery Advanced Courses.

An officer is selected to attend one of these advanced courses on the basis of his potential for promotion and the date on which he will be available for reassignment.

An officer is eligible to attend an advanced course any time between

his third and his eighth year of active duty. He usually attends after his initial assignment and before he is assigned to command a company, although it is not unusual for an officer to have commanded before he attends the course.

#### IOAC

Class Number	Report Date	Start Date	Completion Date
1-82	21 Oct 81	26 Oct 81	17 May 82
2-82	13 Jan 82	17 Jan 82	22 Jul 82
3-82	7 Apr 82	11 Apr 82	14 Oct 82
4-82	2 Jun 82	6 Jun 82	13 Dec 82
5-82	28 Jul 82	1 Aug 82	22 Feb 83

#### AOAC

Class Number	Report Date	Start Date	Completion Date
1-82	13 Oct 81	13 Oct 81	5 May 82
2-82	12 Jan 82	12 Jan 82	16 Jul 82
3-82	13 Apr 82	13 Apr 82	19 Oct 82
4-82	27 Jul 82	27 Jul 82	17 Feb 83

#### FAOAC

Class Number	Report Date	Start Date	Completion Date
1-82	14 Sep 81	5 Oct 81	29 Apr 82
2-82	1 Jan 82	17 Jan 82	21 Jul 82
3-82	29 Mar 82	18 Apr 82	21 Oct 82
4-82	16 Jun 82	14 Jul 82	10 Feb 83

In addition to the above courses, two Infantry officers will attend the Marine Corps Amphibious Warfare Course at Quantico, Virginia, which begins each year in August.

The early report date for each of the FAOAC classes is for an intensive course in gunnery techniques, which all non-Field Artillery officers are required to take before the start date of each class.

Each officer should receive his request for orders (RFO) about six months before his class begins. Included with the RFO will be an advanced assignment packet, which is vital in making the officer's next assignment before he arrives to attend the advanced course.

### MAINTENANCE MANAGEMENT (SC 91)

The Maintenance Management Specialty (SC 91) is designed to train and develop commissioned officers for assignment to Department of Defense and Department of the Army

positions around the world where they will be responsible for the maintenance of armament, wheel and track vehicles, engineer construction and earth-moving equipment, and power generation equipment, as well as for metal-working, welding, and equipment recovery. Assignments in this specialty include maintenance and maintenance-related positions in organizations throughout the Army.

The combat success of any army on the modern battlefield depends upon its ability to move and shoot — equipment that is deadlined in the rear for a maintenance malfunction cannot contribute to victory. The role of every officer who is involved in maintenance management is to make sure that the maximum possible number of weapon systems are operationally ready and available to combat commanders. The management of the Army's maintenance system in concert with actual maintenance operations in support units is becoming an increasingly sophisticated challenge. Literally twice the acquisition cost of most Army equipment is expended in maintaining it during its life cycle; skilled and dedicated maintenance managers are required to insure that these billions of dollars are spent to provide the highest degree of readiness at minimum cost.

Maintenance officers are assigned to every combat division and corps throughout CONUS and overseas areas. Maintenance matters are normally managed by a sub-organization within the logistical staff (G4, J4, DCSLOG) of major Army and unified and specified commands, Department of the Army (DA) staff and within the Joint Chiefs of Staff (JCS). Operational units are in CONUS, Europe, Korea, Alaska, and Hawaii. For experienced maintenance officers, there are staff assignments available in Japan, South America, Australia, and the Caribbean. Maintenance Management Specialists are required at all levels of maintenance from Combat Arms battalions through direct and general support maintenance units, to depots and major installations. Logistical as-

pects of the research and development process also require knowledgeable maintenance officers.

At the field level, young officers in maintenance battalions of the division will be responsible for the repair of nearly all of its organic equipment. On the "wholesale" level, maintenance officers can operate plant production lines that rebuild, overhaul, or modify components or entire pieces of equipment. Some typical unit level assignments (including non-divisional maintenance battalions) are depicted in the chart.

RANK	POSITION
2LT	Armament Platoon Leader Maintenance Platoon Leader Technical Supply Leader
1LT/CPT	Maintenance Control Officer (Shop Officer) Company Commander S4 Tank Automotive Materiel Officer Service School Instructor Maintenance Test Officer Assistant Product Manager, DARCOM
MAJ/LTC	Materiel Officer Battalion Executive Officer Battalion Commander Assistant Project Manager, DARCOM Maintenance Staff Officer, DCSLOG, Major Command Maintenance Staff Officer, DCSLOG, DA Tank Plant Commander Division Materiel Management Center Commander Division G4 Product Manager, DARCOM
COL	DISCOM/Support Command Commander Division Chief, DCSLOG, DA Director of Industrial Operations, Installation Assistant Chief of Staff, Materiel, COSCOM Project Manager, DARCOM

Maintenance training takes place at the U.S. Army Ordnance Center and School, Aberdeen Proving Ground, Maryland. Both the basic and the advanced officer courses train the Maintenance Management Specialist in the requisite areas of maintenance management. Ballistics, principles of automotive vehicles, shop operations, vehicle recovery, and fundamentals of fire control



instruments are some of the subjects covered. Performance-oriented and hands-on training are emphasized to see that the student acquires a comprehensive knowledge of maintenance. For experienced officers, further training in military logistics management and project management is available.

Graduate degrees in various areas of Mechanical Engineering, Logistics and Industrial Management, and Business Administration are available on a highly competitive basis to selected officers, normally after they

complete the advanced course.

In addition, a few officers are chosen to spend a tour with commercial industry, where they work in the day-to-day business world. The experience thus gained by these officers is subsequently applied to Army operations in their later assignments to DA staff and as DARCOM Project Management Officers.

Cadets and others who are approaching commissioning can be designated Specialty 91. This process, of course, must balance Army strength management against individual pref-

erences and educational backgrounds, with the needs of the service assuming priority.

Officers on active duty who are approaching the designation of another specialty may indicate their desire to hold the Maintenance Management Specialty when their career managers begin the designation process.

A more formal discussion of specialty terminology and dual specialty development and designation is presented in Chapter 2, DA Pamphlet 600-3, Officer Professional Development and Utilization.

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## RESERVE COMPONENT NOTES

### NATIONAL GUARD SCHOLARSHIPS

The Army National Guard is offering a new scholarship program that provides ROTC scholarships to selected students who will then serve in the Army National Guard (ARNG) after graduation. The program is called the Army National Guard Reserve Forces Duty ROTC (ARNG-RFD-ROTC) Scholarship Program. Although the program will be a continuing one, its success in the first year will be a major factor in determining the number of scholarships allocated to the National Guard in the future.

Under this program, the ARNG will award one two-year ROTC scholarship to each state and territory, and to the District of Columbia. Each state may nominate a primary candidate and three alternates. If no candidate is selected from a particular state (because those selected were disqualified or declined), the scholarship will be awarded to the most qualified alternate nationwide.

Scholarship recipients must attend an ROTC institution within the state from which nominated, with the exception of the Virgin Islands, which may nominate individuals who will attend an ROTC institution in another state.

Possible candidates for these scholarships are student leaders on campus as well as members of the ARNG who attend college and want to become commissioned officers in the Guard.

The scholarship provides tuition, related academic expenses, and a subsistence allowance for the final two years of the recipient's college career. To become eligible for the scholarship, the student must satisfactorily complete two years of a college academic course (with a minimum grade point average at the time of application of 2.7 on a scale of 4.0), become qualified for entry into advanced ROTC, and successfully pass the Physical Aptitude Examination administered by the ROTC detachment.

To be eligible, the student also must be at least 17 years of age at the time of enrollment as a scholarship cadet and under 25 years of age on 30 June of the year in which he is eligible for appointment; he must enlist in the ARNG for six years, or have a minimum of four years remaining on his enlistment obligation, or extend his enlistment in order to qualify. Upon graduation, the cadet will serve with the ARNG instead of going on active duty.

Anyone who is interested in a scholarship should contact the Pro-

fessor of Military Science at the ROTC institution he is attending or the State National Guard personnel officer.

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### ARNG CAPTAINS FOR ACTIVE DUTY

Extended active duty tours in Europe are still being offered to Army National Guard captains. A number of positions remain to be filled by qualified applicants who are interested in seeing the world and in gaining valuable experience in overseas training with the Active Army.

This program, first announced in July 1980, was implemented to offer Army National Guard captains who have limited Active Army experience the opportunity to gain that experience and to provide the Active Army with ARNG captains on extended active duty on a continuing basis.

To be eligible, a captain must have been in that grade for less than four years and must be qualified in one of the following specialties: 11, 12, 13, 14, 15, 21, 25 or 71. He must have at least one year of experience in an Army National Guard unit before he applies.

Anyone who is interested should contact his state headquarters for further information.

# BOOK REVIEWS



**ALLIES OF A KIND: THE UNITED STATES, BRITAIN, AND THE WAR AGAINST JAPAN, 1941-1945.** By Christopher Thorne (Oxford University Press, 1978. 772 Pages. \$29.50.) Reviewed by Dr. Joe P. Dunn, Converse College.

Despite the hundreds of books on World War II diplomacy, important questions remain unanswered. In the last decade, revisionist scholars have inspired new questions and perspectives focusing on issues of colonialism, commercial expansion, and rivalry for world markets. American-British rivalry for postwar economic position has become a common revisionist theme. Unfortunately, most of their work has been more ideological and speculative than soundly researched and documented.

No one can accuse British historian Christopher Thorne, of the University of Sussex, of superficial research or ideological myopia as he addresses many of these same themes. Thorne set for himself a mammoth task: a strategic, military, and political history and assessment of the Anglo-American alliance against Japan during World War II. This volume is a sequel to his highly acclaimed *The Limits of Foreign Policy*, a study of the West and the Far Eastern crises of 1931-1933.

The author exploited the diplomatic archives of the United States, Britain, Australia, and the Netherlands; consulted over sixty collections of private papers; and conducted numerous interviews of key figures in this ambitious undertaking. Research and documentation are exhaustive; bibliography is quite impressive.

One cannot begin to list the many contributions of this study in so little space. Suffice it to say that Thorne

uses new source material and offers novel and perceptive interpretations of the familiar. Throughout, his approach is balanced and judicious, and he adds much to our understanding of the complex and often contradictory motivations of nations and statesmen.

Although brilliantly written, full of humor, with apt quotes and fitting anecdotes, the book is one for the specialist rather than the larger public. Thorne is a most sophisticated student of international affairs, and few but the most dedicated will make their way through the almost 800 pages of tiny print.

Nevertheless, the book will make its mark in academia for, like its predecessor, it is an extraordinary work. Not only is it the best study of this particular subject, it ranks among the finest volumes written on any aspect of World War II diplomacy.

**THE DEVIL'S VIRTUOSOS: GERMAN GENERALS AT WAR, 1940-1945.** By David Downing (St. Martin's Press, 1977. 256 Pages. \$10.95.) Reviewed by William Brooks.

David Downing, a well-known British author, here examines nine major World War II campaigns from the viewpoint of those German generals who exercised the greatest influence on their planning, direction, and outcome. His generals are Manstein, Guderian, Halder, Rommel, Kluge, Bock, Blomberg, Brauchitsch, Model, von Rundstedt, and, to a lesser degree, Keitel. He has created a unique picture of the generals in action as they directed the armies in action in Western Europe, in Russia, and in Africa.

These generals are seen fighting several battles at once: one against the slow but relentless Soviet tide;

one against the overwhelming weight of British and American airpower and material resources; and another against their own leader, Hitler, who thought he knew best how to conduct the war. Each general tried to salvage something from the wreck he helped to create, but in the end their failures were as total as their victories had been.

The text is presented in a readable manner and is based primarily on German sources that were translated into English. The book can be considered a concise and worthwhile contribution to the literature of World War II.

**DUNKIRK.** By John Harris (David and Charles, 1980. 160 Pages. \$19.95.)

John Harris' book is a lively account of what was, in 1940, an almost unmitigated disaster. His is not a detailed history of the Dunkirk business but it concentrates on the manner in which the evacuation of the Allied troops was actually conducted. A British writer, Harris stresses the "spirit of Dunkirk," that unforgettable something that kept the operation going even when things looked the darkest.

**BRITISH MILITARY POLICY BETWEEN THE TWO WORLD WARS.** By Brian Bond (Oxford University Press, 1980. 419 Pages. \$48.00.)

This is a fascinating study of the development of British military policy from the end of World War I to the arrival of the British Expeditionary Force on line in France in October 1939.

The author has delved deeply into the official British Cabinet and War Office records for the period to dem-



onstrate that the blame for the British Army's unpreparedness in 1939 should not be placed solely on the Army's leaders. Rather, he feels that the Army's weakness was caused as much by the failure of the country's political leaders to let the Army prepare for a continental war.

He also devotes two most interesting chapters to the Army's attempts at mechanization, chapters that should correct many of the misconceptions that have arisen about that subject.

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**TIGER JACK.** By Hanson W. Baldwin (Old Army Press, 1979. 168 Pages. \$10.95.) Reviewed by Colonel Robert Clarke, Office of the Joint Chiefs of Staff.

Every army needs a few leaders who are brilliant, unencumbered, perceptive, and even critical of the system. Major General John P. Wood, a World War II commander of the 4th United States Armored Division, was all of these and more, but one might question whether he was a successful commander, especially in the light of his being relieved from command after only four months in combat. In fact, there were some who believed that General Wood should not have had command of the division in the first place, that he would have been better off as an engineer.

Wood was apparently a brilliant but caustic individual whose strong point was fierce loyalty to his troops but whose weak points included being intolerant of those either senior or junior to him in rank, particularly if he felt they were not as bright as he was. The latter trait he simply could not overcome, and it was this that probably cost him his division.

The book is easy reading, but it paints an incomplete picture. And the author fails in any way to analyze Wood's supposedly brilliant leadership abilities. I feel it is of only limited value to the military reader.

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**THE FIFTH INFANTRY DIVISION IN THE ETO.** Prepared by the

**Fifth Division Historical Section, 1945.** Reprinted by The Battery Press, Incorporated, 1981.

This is the 18th volume to be published in the Battery Press's divisional series. Like the others, it is a faithful reprint of the original publication, complete with maps, photographs, and tables.

The book traces the route followed by the division from its activation on 16 October 1939 at Fort McClellan, Alabama, through its service in Iceland, its later training in Northern Ireland, and its combat service in Europe between 9 July 1944 and 9 May 1945.

Readers interested in this volume can get more information about it by writing to The Battery Press, Inc., P.O. Box 3107, Uptown Station, Nashville, Tennessee 37219.

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**SOVIET ARMED FORCES REVIEW ANNUAL, Volume 3, 1979.** Edited by David R. Jones (Academic International Press, 1979. 365 Pages).

This excellent publication contains a number of well-written articles on the Soviet armed forces and their capabilities, plus some three dozen tables and graphs that portray those capabilities.

As the editor points out in his very fine introduction, the volume (as did its predecessors) contains "a collection of both contemporary and historical materials." Many of the contributors are well known for their previous writings on Soviet affairs and all but one can be considered an expert in his field.

This is a most worthwhile effort and it is one that U.S. Army officers everywhere should become familiar with.

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**THE MILITARY-NAVAL ENCYCLOPEDIA OF RUSSIA AND THE SOVIET UNION: VOLUME 2, ADMINISTRATION, MILITARY, SCIENCE OF to ADMIRAL MAKAROV (ship).** Edited by David R. Jones (Academic International Press, 1980. 245 Pages. \$31.00). Reviewed by Alex-

ander S. Birkos, Mount Shasta, California.

This second of a planned total of fifty volumes continues the high standard of rigorous scholarship that was so evident in the first one. Anyone who has a professional or even a remote interest in the development of the Tsarist or Soviet armed forces can ill afford to be unaware of this work. The editor is to be commended for taking on a true labor of love, which promises to be an all-inclusive and nearly definitive treatment of its subject area.

The most important articles in this second volume are those that explain Russian and Soviet theories regarding military and naval administration and the administrative system and policy-making process within the defense establishment since the earliest periods of Russian history.

Although Soviet military authorities often and loudly proclaim their armed forces to be a new and revolutionary type, it is obvious from this book that many Soviet administrative organs and decision-making processes are refinements of Tsarist antecedents. This book vividly demonstrates the historical continuity of the strong interest the Russians have always had in military affairs. If nothing else, it shows that we cannot afford to be complacent about Soviet military developments.

The military hobbyist or enthusiast will find as much interesting material in this book as the military professional who wishes to follow and assess Soviet military theories and doctrinal concepts. Its potential reference value far outweighs its cost. A copy of this book, and all of the books in this series, should be on the shelves of every military library.

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**IN LIMBO: THE STORY OF STANLEY'S REAR COLUMN.** By Tony Gould (Hamish Hamilton, 1979. 268 Pages. \$25.00). Reviewed by Mitchell R. Katzberg.

After the fall of Khartoum and the collapse of Egyptian power in 1885, Emin Pasha, one of General Gor-

don's lieutenants, withdrew with his Sudanese and Egyptian soldiers to the southern end of the province.

The story of the Emin Pasha relief expedition has always aroused great interest, and Tony Gould, using personal diaries, letters, and official state papers has skillfully woven a dramatic tapestry of the events surrounding that expedition.

On 28 June 1887, H. M. Stanley marched an advance column out of his base camp at Yambuya. He left five Englishmen, 250 porters, and the bulk of the expedition's supplies at the camp to be safeguarded until his return in an estimated four months' time. When he finally returned 14 months later, only one of his officers was still in place. Two had died, one had been invalided home, and another had been stranded hundreds of miles down the Congo river. There were also more than 100 graves in the camp.

From every practical point of view, Stanley's expedition was a failure, if not an unmitigated disaster. The time taken, the lives lost, the abysmal record of personal discord, and, in the end, the expedition's accomplishments, make a shocking story.

In most accounts of the expedition, the story of the rear column forms merely an episode. But by making it the main story, Gould reveals an entirely new point of view — one that shows the story less as a part of the Emin Pasha saga and more as a significant moment in the history of the Congo Free State and that state's relations with the Arab slave traders and the Africans who were its subjects.

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**NO MAN'S LAND: 1918, THE LAST YEAR OF THE GREAT WAR.** By John Toland (Doubleday, 1980. 651 Pages. \$17.95).

In many of the histories written about World War I, when 1918 is discussed, the authors almost invariably describe the great German offensives in considerable detail, only briefly mention the Allied counter-offensives that followed, and then spend a good

deal of time on the Allied attempts to create a unified high command and on the armistice negotiations. Almost in passing they mention the Italian and Serbian fronts, the internal Russian situation, and the dispatch of Allied intervention forces to Russia.

And so it is with this latest effort from John Toland, a well-known American writer, although he does change the script a bit by devoting what seems to be an inordinate number of pages to the final days of the Hohenzollern regime and the happenings of R. H. Bruce Lockhart, Lloyd George's special representative to Russia.

General John Pershing's American forces fare badly in Toland's writing. To him, the American troops performed poorly and it was only because they were assisted by British and French units that they managed to do anything at all. One thing is clear — as in World War II, the British high command held the American soldier in low esteem.

This is an overly long book with some interesting parts. But taken as a whole, it is most disappointing.

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**THE ROMAN IMPERIAL ARMY OF THE FIRST AND SECOND CENTURIES A.D.** By Graham Webster (Barnes and Noble, 1979. 334 Pages. \$25.00). Reviewed by Leroy Thompson, Festus, Missouri.

This work, which has been out of print for some years, is one of the standard works on the Roman Army, and its reissuance is a boon to both scholars and librarians. As its name implies, it treats the Roman Army in post-Republican times and does so very thoroughly. While Graham Webster's academic training was as an archaeologist, he is also a sound military historian and a true expert on Roman military equipment.

He includes a number of excellent illustrations in this work, many from Trajan's Column, the best pictorial record of the Imperial Army. Additional graphics can be found in the chapter on legionary forts and camps, and these contain several plans that

illustrate the layout of permanent Roman forts.

From its first publication, this book has ranked as a keystone of any reference library on the Roman Army. This new edition fills a void felt by many while the work was out of print. It is highly recommended for inclusion in any library that has an ancient warfare collection or as a standard work worthy of inclusion in any good military reference collection.

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**THE ORPHAN BRIGADE: THE KENTUCKY CONFEDERATES WHO COULDN'T GO HOME.** By William C. Davis (Doubleday, 1980. \$12.95). Reviewed by Captain Don Rightmyer, United States Air Force.

The Confederate First Kentucky Brigade, better known as the "Orphan Brigade," stands with Jackson's Stonewall Brigade and other outstanding fighting units that tramped the battlefields of the Civil War.

Formed mostly of Kentuckians, the Orphan Brigade could not return to its native state throughout the war. But the unit's true claim to fame rests on its performances in many of the hardest fought battles of the war and on some of the men who led the brigade and its units into those fights.

The author skillfully relates not only the brigade's battle history but also its mystique that grew during the years. Through his pages, the reader comes to a much fuller understanding of the pain of a "brother's war" as Kentuckians, on occasion, had to fight fellow Kentuckians.

This book enriches the history of the Civil War, and makes a definite contribution to our understanding of that war and of the men who fought in it.

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#### RECENT AND RECOMMENDED

**MOROTAI: A MEMOIR OF WAR.** By John Boeman. Doubleday, 1981. 279 Pages. \$12.95.

**GREEN SIDE OUT: MARINE CORPS SEA STORIES.** By H. G. Duncan and W. T. Moore. D&S Publishers, Incorporated, 1980. 300 Pages. \$3.95, Paperback. (Primarily for our Marine Corps readers.)



# INFANTRY LETTERS



## NBC CALCULATOR

Dear Sir,

I am writing in reference to Lieutenant Lotterman's article, "NBC Calculator," in your July-August 1980 issue. Some of the items mentioned are outdated, and there is some additional information available.

First, the NBC defense jobs at battalion and company level are no longer additional duties. At battalion level, there is one 74A (Chemical Corps officer) and one 54E (Chemical Specialist 6). At company level, there is still an additional duty NBC officer and an additional duty enlisted alternate (usually a corporal). But the real improvement is that the company NBC NCO is now a 54E20. This gives the company commander his own NBC expert right in his track.

Infantry units received these new slots in Fiscal Year 1980, and armor units received theirs this past October with the start of FY 1981. In FY 1982, all units Army-wide should have Chemical Corps officers at battalion level and Chemical NCOs at company level.

The ABC-M28A1 Radiac and Nuclear Yield Calculator Set, or Whiz Wheel, as it is commonly known, is no longer being taught as doctrine by the Chemical School. It was thrown out as being too variable, or in other words, not accurate enough.

I agree that it is very difficult to make chemical or fallout predictions while riding in a tracked vehicle, but it is possible. It takes organization and practice. That's another reason why we strive so hard for realism in training.

Lieutenant Lotterman's idea about the hand-held calculator for NBC calculations is a very good one. In fact, this has been a project at

Edgewood Arsenal in Maryland for some time.

JACK M. PRESTON  
1LT, Chemical Corps  
1st Bn, 15th Infantry

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## WEAPONS SQUAD

Dear Sir,

The article "Weapons Squad" in your January-February 1981 issue (page 13) troubled me. The basic idea around which the article is written is that the platoon's crew-served weapons are "useless to the platoon leader because too few of his soldiers know how to employ them properly." While this may be true in certain units I can't imagine its being widespread in the Army or even in one battalion.

The problem here is a question of leaders training their men in the basic infantry skills. No reorganization is required at the leader level. No unit in the Army is so busy that these skills should be neglected.

I am honestly amazed that a suggestion like this could be made and so calmly received by the magazine. This indicates a lack of concern somewhere in the unit in which Captain Cage served and I hope it is not an Army-wide problem.

JACK E. MUNDSTOCK  
CPT, Infantry  
Fort Benning, Georgia

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## MORE ON FAO SPECIALTY

Dear Sir,

I would like to add to the dialogue concerning the Foreign Area Officer (FAO) specialty, beginning with extending highest compliments to

Major John Kelsey for his very fine letter in the January-February 1981 issue of INFANTRY (page 55).

Perhaps I can expand the perspective of this issue with my personal background and current assignment. I am a fully-qualified Southeast Asia FAO currently in the third year of an FAO assignment with the U.S. Defense Liaison Group, Jakarta, Indonesia. I would like to sound a firm "amen" to Major Kelsey's discussion on FAO training and qualifications and on the appropriate use of timing in what is a long series of training jobs.

I obtained my master's degree during a break in service and was given constructive credit for both the FAO Course and the in-country phase of training because of prior experience in this region. I was trained in the Thai language and was in Thailand at the time I was accepted into the FAO specialty. Since then I have attended Command and General Staff College, attended Indonesian language school, spent one year in my primary specialty (Humint/CI), and, as mentioned above, spent almost three years in an area-qualified FAO billet.

It *can* be done with dedication and the attention of assignment officers at MILPERCEN. (I might add that Major Kelsey was responsible for what I consider a well-managed sequence of assignments culminating in one of the most rewarding assignments in my more than 16 years of active duty, for which I express my appreciation.)

Our organization was at a strength of 27 military spaces when I arrived here in mid-1978 and of the eight Army officers, four were area-qualified FAOs in validated FAO billets. In our case, all of the officers with continuous contact with the In-

donesian military were FAO specialists, three of whom were combat arms officers. All four consider this career-enhancing duty and were volunteers for the assignment — beyond the “big PX.”

I cannot speak for other security assistance organizations but certainly this one is making good use of the FAO system in its billet requirements. And all of us who were eligible for promotion to lieutenant colonel were promoted on time.

From my perspective the FAO specialty has been a superb experience that I strongly commend to others.

JOHN B. HASEMAN  
LTC, MI

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## MODIFY NEW BOOT

Dear Sir,

As an avid hunter and as a member of various infantry and armor units over the past 13 years, I have worn a lot of different kinds of boots. And as one of the first 45 soldiers to participate in the Army's test of its new experimental combat boot, I had a chance to compare it with all the others. I believe that it will be a real improvement — with some minor modifications.

Good footwear is one of the most important parts of a soldier's clothing issue, because it affects not only his efficiency but also his morale. But in the past our combat boots have been less than adequate. In Korea, for example, in the winter of 1950-51, many foot problems, including frostbite, resulted from inadequate boots.

The black combat boot that the Army has used for the past 23 years has some decided disadvantages: It lacks a steel shank; it is neither waterproof nor water resistant; it can be picked up by infrared detection devices; and it has poor sole and heel traction.

The new experimental boot has a number of advantages over the black one: Its earth brown color is good for

camouflage; its rough texture avoids infrared detection; it is easy to clean with a wire brush and does not have to be shined; it is water resistant (but not waterproof); it has a reinforced fiberglass toe and a Vibram sole and heel; and its glove leather lining requires no break-in period.

The new boot also had a steel shank in the sole and heel until the Natick Research and Development Laboratory was directed to remove it. The intention was to make the boot lighter and less expensive, but the steel shank would provide protection from rocks and sharp objects.

I'll admit that the increase in weight over the standard black combat boot might pose a hardship and might cause ankle problems for the infantry soldier engaging in any type of physical training. But I believe that the steel shank should be retained and the boot made lighter by using a semi-lug crepe sole and heel instead of the Vibram type.

Another problem with the already heavy sole of the boot is that it sheds mud poorly and becomes even heavier. It has the same lug sole and heel pattern that the first jungle boot developed for Vietnam had, and it proved inadequate there. If a semi-cleat lug crepe sole and heel were used, it would weigh less, would give excellent traction, and would be much easier to clean in garrison or in the field. The difference between this sole and the Vibram sole lies in the height of the cleats and in the distance between them.

I also think the boot should have brass “D” rings, such as some hunting boots have, in addition to the present hooks for the laces. If a hook breaks or is crushed, there is no back-up hook for the lace. By incorporating a “D” ring in addition to the present hook, the boot would have a “two-in-one” feature. The “D” rings would also allow faster lacing as do the German boots.

Another point — boots should fit. A soldier should never be encouraged to wear two pairs of socks to compensate for boots that are too big for him. In the final production, different

molds for the boot should be developed for female soldiers, too, instead of having them wear the same combat boot as men.

With these minor modifications, I believe the new boot will be a real step forward for the soldier and, technologically, for the Army as well.

SSG RANSFORD A. POTTER II  
Fort Jackson, South Carolina

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## M1911A1 VERSUS 9mmP

Dear Sir,

In reference to the spate of letters in your March-April 1981 issue (page 55) in response to Lieutenant Farnsworth's article on the military sidearm (INFANTRY, November-December 1980, page 31) — unfortunately, I missed that issue and so did not read the article. But I feel I am informed enough on the subject to respond to the letters you printed, and I hope I can add some worthwhile fuel for thought.

The basic problem with the U.S. Army's present stocks of M1911A1 pistols is that no new service sidearms have been procured since 1945. Procurement has been limited to parts and a few match weapons for competitive use. Since 1945 the Colt .45 ACP has undergone a renaissance in the hands of both target shooters and members of the so-called “combat” shooting leagues. No 9mm Parabellum weapon has ever challenged the .45 ACP in these areas.

In 1970, Colt Firearms announced a new modification to its line of .45 ACPs — the introduction of the collet barrel bushing, which Mr. Sweeney mentions in his letter. This simple change alone will accurize any G.I. “clunker” to acceptable standards, as Mr. Sweeney says.

The only other modification that is necessary to improve the M1911A1 is the addition of high visibility, fixed rear sights. This would make acquisition of the target much faster and improve accuracy. Bigger front sights were part of the A1 modifications to the M1911 in 1926, but sight technol-



ogy has improved since then. Adjustable sights are not necessary. FBI studies show that most handgun confrontations take place at seven meters or less, and the basic function of the sidearm is to provide close-in defense; therefore, the shooter need only hit the target at center of mass, not in a ten ring.

Mr. Cogger, in his letter, presents an argument that is based on ammunition interoperability, but it is flawed in several areas. The .45 ACP may be a minority pistol caliber in NATO, but that alone is not a good reason to adopt the 9mmP.

The United States pressed NATO into adopting the 7.62mm NATO round in 1956. Britain adopted it under protest (Britain favored a .280 caliber), and France never did, staying with 7.5mm. Most of the smaller NATO members were armed with British and U.S. World War II weapons and were not able to standardize on the 7.62mm NATO until around 1960.

The U.S. adopted the 7.62mm NATO M14 in 1957 and in the same year the Continental Army Command (CONARC) began to express interest in the .223 Remington cartridge (5.56mm). In 1963, Secretary McNamara ordered 85,000 M16 rifles for the Army, and M14 production was halted. So our standard rifle cartridge is now the 5.56mm M193, while NATO's present standard is the 7.62mm NATO. Only France (of the European armies) has adopted a 5.56 weapon, the MAS. NATO *may* adopt the 5.56mm in the future.

When addressing this point it is also well to remember that European armies and police have traditionally chosen underpowered pistol cartridges such as the 7.63mm Mauser, 7.65mm (.32 ACP), 9mm Kurz (.380 ACP) and 7.65mm Luger (.30 Luger).

To those who think that the 9mmP is superior to the .45 ACP because Jonathan Browning designed his last pistol (the M1935 High Power) for it, I would remind them he also designed pistols in .32 ACP and .380 ACP after the M1911. The 9mm Parabellum did not become a standard European mil-

itary cartridge until World War II, but it is as old a cartridge as the .45 ACP.

To address Mr. Cogger's point on the merits of General Hatcher's Relative Stopping Power formula (RSP), I would present a very simple argument. The .45 ACP's immediate effect is indisputable. The round was developed to be as effective as the .45 Long Colt, which had to be brought back to replace its own successor, the higher velocity .38 Long Colt, in the Moro rebellion.

Numerous eyewitness accounts have verified the immediate incapacitating power of the .45 ACP, while confirming the 9mmP's lack of it. The 9mmP's faster and lighter bullet produces a more destructive wound channel, but less of its energy is transmitted to the target. The works of LTC (USMC, Retired) Jeff Cooper, while more practical than scientific, bear this out. After all, science tells us that bumblebees can't fly, but they do it anyway.

The matter now rests in the hands of the Joint Services Small Arms Program (JSSAP) at their test facility at Eglin AFB, Florida. The Air Force is the proponent agency, since it uses the largest number of pistols and the design requirements are based on the needs of the Air Force. These stipulate a 9mmP, double action, ambidextrous, large magazine capacity, automatic pistol.

Presently, the top contender is a variant of the Beretta M1951. The winner will first replace more than 30 models of Colt, Ruger, and Smith and Wesson .38 revolvers in service (used by pilots and police in all services).

Next, the adopted weapon will replace the small number of Smith and Wesson MK22 Model O (M39) 9mmP weapons in service with the Navy's special units. Last to be replaced would be the M1911A1 .45 ACPs.

In closing, it is interesting to review three areas of this controversy that have received scant attention. First, the JSSAP technicians have had to redesign the 9mmP NATO cartridge with a new Hornady flat-nosed, conical, metal-jacketed bullet to achieve minimal acceptable stop-

ping power and accuracy — unlike civilian 9mmP users who can use hollowpoints. The rounds are interchangeable, but the point of impact would change measurably. This highlights the reasons why the 9mmP has never challenged the .45 ACP's accuracy; the cartridge is just not as accurate.

The value of an ambidextrous, double action pistol is debatable. Only the Germans and the Soviets (of the major powers) have ever adopted a double action sidearm and few competitors in "combat" matches, where "weak hand" courses of fire are required, bother with ambidextrous safeties as other than "nice to have" features.

Last, but hardly least, Mr. Sweeney hit the nail squarely when he mentioned training. No sidearm, no matter how modern, is effective in the hands of someone who can't use it or doesn't trust it. To stand upright, one hand in your pocket, and throw rounds 25 meters down range once a year to satisfy the IG that we have "familiarized" is about the extent of our pistol training, and our confidence in our weapons shows it. Field Manual 23-35, Pistols and Revolvers (September 1971), has an effective combat style course of training in it, but as is so often the case with our rifle marksmanship, few units have the time to carry it out.

The choice of the 5.56mm cartridge was a political one at the expense of our infantry. Is the 9mmP choice to be the same?

MYRON H. MURLEY  
CPT, Infantry  
Fort Riley, Kansas

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## UNIVERSITY TIME

Dear Sir,

Thank you for the article "Functioning on Campus," by Lieutenant Colonel Stephens and Doctor MacLachlan, in your March-April 1981 issue (page 33). We have placed a copy of it in a permanent file that we

use to orient all incoming cadre members.

One of the psychological adjustments that newly assigned cadre must make to the campus environment concerns the pace at which progress is made or problems solved. Military officers are used to dealing with a problem head on, moving from identification to resolution in the shortest possible time. That's not the way most actions are handled on a college campus. The officer who cannot adjust his style to "university time" is in for a very frustrating tour of duty instead of one of the most rewarding he could have in an Army career.

RONALD L. KIRSHMAN  
LTC, QM  
Western Michigan University  
Kalamazoo, Michigan

---

#### PERSHING RIFLES

Dear Sir,

I am writing a detailed history of the National Society of Pershing Rifles, and would appreciate any information on the organization that your readers may have.

This organization is an ROTC honorary society, founded in 1894 in honor of John J. Pershing, who was then a First Lieutenant and Professor of Military Science at the University of Nebraska. Our National Headquarters estimates that more than 75,000 former members are still living, some of whom are now Active or Reserve Component officers and enlisted men.

I am interested in both personal experiences and historical information. All loaned materials will be returned.

My address is 1826 "A" Street, #5, Lincoln, NE 68502.

KEVIN M. BORN  
Cadet, Army ROTC

---

#### 3d DIVISION REUNION

Dear Sir,

The Society of the Third Infantry Division will hold its 62d annual reunion on 9-12 September 1981 at the Radisson Plaza Hotel in St. Paul, Minnesota.

The Society is made up of 3d Infantry Division veterans of World Wars I

and II and the Korean conflict, as well as those who have served in peacetime or in attached units. Close relatives of the veterans are also welcome to attend all of the sessions of the reunion.

Anyone who would like further information should write to Tom Raftery, 1201 Hubbard Avenue, St. Paul, MN 55104; telephone (612) 645-7809.

HANK AULD  
Rancho Mirage, CA 92270

---

#### FIRST DIVISION REUNION

Dear Sir,

The Society of the First Division, composed of members of the First Infantry Division in World War I, World War II, and Vietnam, will hold its 63d Annual Reunion at West Point, New York, 20-23 August 1981.

Anyone who would like further information may write to me at 5 Montgomery Avenue, Philadelphia, PA 19118.

ARTHUR L. CHAITT  
Executive Director  
Society of the First Division

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# From The Editor

It has been a rewarding experience to serve as the Editor of INFANTRY Magazine for the past two years. During that time I have gained a great deal personally and professionally from the staff who produced the magazine and from the contributors whose articles filled its pages.

I was blessed with an outstanding staff who used their professional talents to provide infantrymen around the world with the type of information and material that furthers their professional development and growth.

To the contributors of letters, articles, photos, and criticism, your contributions shape this magazine's design, content, and direction. I thank you for your outstanding support and ask you to continue to give that same support to my successor.

Until we meet again...

E.C.S

OUTSIDE BACK COVER:

Infantry Under Fire, artist and date are not identified.  
(Courtesy, U.S. Army Center of Military History)





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SEPTEMBER-OCTOBER 1981



# Infantry

A PROFESSIONAL JOURNAL FOR THE COMBINED ARMS TEAM





# Infantry

A PROFESSIONAL JOURNAL FOR THE COMBINED ARMS TEAM

September-October 1981

Volume 71, Number 5

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"I have the honor to inform Congress, that a Reduction of the British Army under the Command of Lord Cornwallis, is most happily effected. The unremitting Ardor which actuated every Officer and Soldier in the combined Army on this Occasion, has principally led to this Important Event, at an earlier period than my most sanguine Hopes had induced me to expect." (From General George Washington's dispatch to the President of Congress, 19 October 1781.)



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**INFANTRY:** Published bimonthly at the United States Army Infantry School, it provides current information on infantry organization, weapons, equipment, tactics, and techniques. It also includes relevant historical articles and serves as a forum for professional ideas. Unless otherwise stated, the views herein are those of the authors and not necessarily those of the Department of Defense or any element thereof. The use of funds for printing INFANTRY was approved 22 July 1981 by Headquarters, Department of the Army, The Honorable John O. Marsh, Jr., Secretary. Official distribution: three copies to each infantry and infantry-related unit and to appropriate staff agencies and service schools.

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# Commandant's NOTE



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**MAJOR GENERAL SAM WETZEL**

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I am deeply honored at having been selected to be the 35th Commandant of the Infantry School. At the same time, though, I know I will have to fill a great infantryman's shoes. My predecessors were responsible for instituting a number of innovative and far-reaching training programs that had a tremendous effect on the Infantry community. We plan to build on the firm base that they established.

There are many more programs we must develop if we are to meet the needs of our ever-changing Army. The increasing number of systems coming into the Army's inventory, coupled with the incredible velocity of force modernization, calls for innovative training programs. Our junior leaders must be thoroughly acquainted with these new items because they are going to be responsible for employing them and training their soldiers in proper use and maintenance.

We also have certain definite ideas as to what our small unit leader training programs — for both our company-grade officers and our noncommissioned officers — should consist of and what they should accomplish. As the former commander of the 3d Infantry Division in Germany, I saw at first hand what well trained soldiers can do when they have the right kind of leaders and the proper motivation.

In my short time here, I have learned, for example, that our officer training programs have come in for some criticism from the field. On occasion, we were told that the graduates of our basic and advanced officer courses are not as well prepared as they might be. Although specifics are seldom mentioned, we pay careful attention to the comments because training is our business and our goal is to turn out the best.

We are in the process of making some changes in our *basic officer* course curriculum. Beginning with Class 1-82, which starts in November 1981, the length of the basic course will be increased to 16 weeks. The revised and expanded course of instruction will not use the old track system. We will increase the number of core subjects and stress mechanized infantry tasks. We will also increase the number of hours of weapon instruction and the number of hours devoted to maintenance training. In addition, the student-officer will be introduced to the infantry fighting vehicle (IFV) and to certain Division 86 concepts. New tasks, as they are needed, will be added to the course.

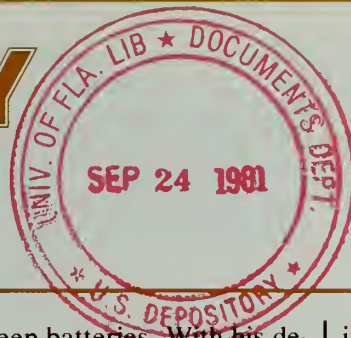
We are also planning some revisions to the *advanced officer* course curriculum. Subjects that are unique to command, such as training management, maintenance, property accountability, and personnel administration, are receiving increased emphasis. We will also devote more hours to chemical and nuclear training; we may completely revise our course writing program; and we will maximize our instruction on the MILES system. The revised curriculum will first be presented to Class 1-82, scheduled to start in late October 1981.

Although we believe we are on the right track with all of our leader courses, we know there are things we might be doing better. We also need to continue a dialog with commanders in the field on doctrine for the IFV. I earnestly solicit your ideas and suggestions as to how you think we at the Infantry School can "Make It Happen" for you.

Our goal is to produce the best Infantry soldier and leader for the entire infantry community.

**THINK COMBINED ARMS!**

# INFANTRY NEWS



**SOLDIERS 40 YEARS OF AGE AND OLDER** will take part in a semi-annual Army Physical Readiness Test (APRT) under the new physical readiness program, which went into effect 1 December 1980.

The 40 and over age group was not tested in the past, but now the APRT for them will consist of the same three events as the test administered to soldiers 39 and under: pushups, situps, and a two-mile run. The major difference between the two tests will be in the scoring. The scoring tables for the younger group are graduated on a point scale; those for the 40 and over group will be based solely on "GO/NO GO."

The scoring tables for the older group will be included in Change 1 to FM 21-20, Physical Readiness Training, and in the revised Army Regulation 600-9, Army Physical Fitness and Weight Control Program, both of which will be available soon.

No soldier 40 or over will take the APRT until he has undergone appropriate medical screening — usually as part of his regular physical examination — followed by a self-paced six-month training program.

INFANTRY Magazine will carry an article on the complete 40 and over APRT program when the final standards have been published.

**SERGEANT FIRST CLASS JOHN J. SIEBERT**, Support Company, 1st Battalion, 123d Infantry, Illinois Army National Guard, has invented a device he feels will save the National Guard thousands of dollars and add realism to TOW training.

His device involves clamping an M16 rifle to the tube of a TOW, connecting a solenoid in series with the TOW and the rifle, and using current

from two jeep batteries. With his device, a TOW gunner knows the parts of an armored vehicle he has hit, which assists him in identifying critical penetration points.

Using the device, the gunner fires the TOW. Then there is a delay while the round is tracked. For example, at 3,000 meters there would be a 16-second delay. After the delay, the M16 fires. The gunner can then examine his target, usually a facsimile of a tank, to see what point on the armor he has hit.



With the present TOW training device, an all-electronic training aid, a gunner's score is dropped if he gets off target. With Sergeant Siebert's device, the gunner can swing back on his target at the last second and score a hit, which is the way the TOW would work if the gunner were firing a live round.

The targets used with Sergeant Siebert's device are drawn silhouettes of armor vehicles at a 1/60 scale. If a .22 caliber adapter is attached to the M16 rifle, the TOW could be fired on an indoor range in a National Guard armory.

**TO HELP SOLDIERS PREPARE** themselves for the Expert Infantryman Badge (EIB) test, the Infantry School is now incorporating EIB test

information with each CMF11 SQT notice that is sent to the field. A soldier can now find a complete listing of those tasks that make up the EIB test as well as those for a particular SQT.

Training extension courses (TECs) are also available for each task that is contained in the EIB test, except for the physical conditioning portion. It has been proved that soldiers who use the TEC courses to prepare for the SQT and the EIB do better than soldiers who do not.

**THE COMMANDANT'S NOTE** entitled "Infantry and Air Defense in the Air-Land Battle" (May-June 1981) needs some minor changes. It states (on page 3) that an infantryman engaging a jet aircraft with his rifle or machinegun should "lead" his target by aiming "in front of the jet by the approximate length of a football field."

According to TC 23-44, September-October 1979, the distance should be the length of *two* football fields. In addition, the word "lead" needs to be clarified. Once the infantryman has estimated the lead distance, he aims his rifle or machinegun at the aiming point and fires volume fire at that single point until the aircraft has flown past it. He maintains the aiming point, not the lead distance, so his weapon should not move once he starts firing.

For helicopters and fixed wing aircraft, the rifleman begins firing at a point about one-half the length of a football field ahead of the aircraft.

**RANGE QUALIFICATION** PLACES A TREMENDOUS burden on soldiers and trainers alike when units report to a range for their annual qualification firing.



Training extension courses (TECs) are available that can not only help a unit prepare for its range qualification but also assist it in making the most of its relatively scarce time on the range. TEC lessons can be used either by individuals or by groups, which makes them especially valuable for a squad leader.

The following TEC lessons are currently available on the M16 rifle:

- 939-071-0009-F Loading and unloading the M16A1 rifle.
- 939-071-0010-F Disassembly and assembly of the M16A1 rifle.
- 939-071-0011-F Maintaining the M16A1 rifle.
- 939-071-0012-F Preventing and correcting common malfunctions.
- 939-071-0213-F Zero the M16A1 rifle.
- 939-071-0214-F Zero M16A1 — aim and fire techniques.
- 939-071-0215-F Zero M16A1 — analyze and correct errors.

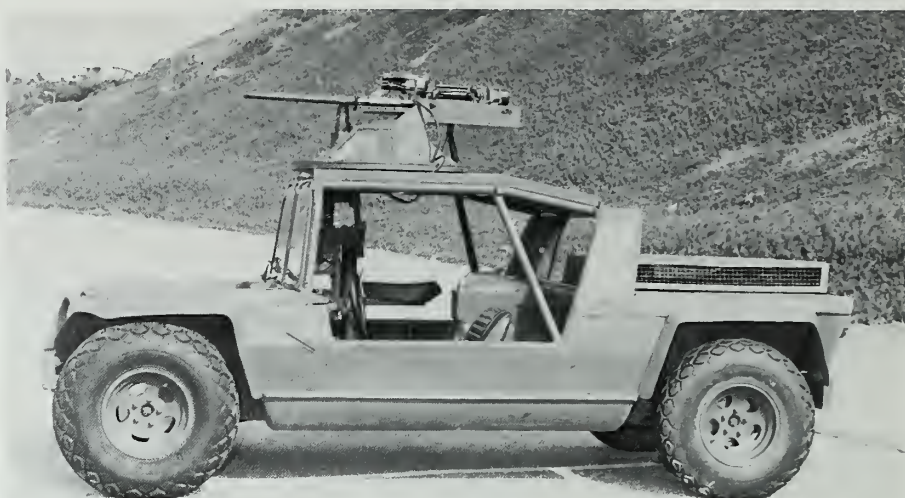
TEC lessons are available at all individual learning centers.

THE FOLLOWING NEWS ITEM was submitted by the Infantry Board:

• **XM230E1 Chain Gun.** Studies indicate that a heavy machinegun or an automatic gun of some kind is needed on a lightweight, high mobility vehicle so that point targets can be engaged during the conduct of rear area combat operations.

During the past few years, several available weapons have been considered and evaluated for this role, but none have proved completely satisfactory.

Earlier this year, the 30mm chain gun, XM230E1, under development for use on the YAH-64 advanced attack helicopter, seemed to offer some promise. Accordingly, the Army's Training and Doctrine Command ap-



proved a concept development test of the weapon, and awarded a contract to the designer and manufacturer of the weapon to mount a chain gun on the XR311, a light-weight, low-silhouette, four-wheel drive vehicle with high cross-country mobility. The vehicle, with the mounted chain gun and a supply of practice-type 30mm cartridges, was delivered to the Infantry Board in March 1981 for testing.

The chain gun is a single-barrel, externally powered (electric drive motor), automatic cannon or gun system that incorporates a rotating bolt assembly driven by a chain drive. There is positive round control within the gun's ballistically independent system, which virtually eliminates the malfunctions that are usually caused by conventional ammunition problems.

The gun operates from an open bolt. Its cyclic rate of fire can be varied to meet the tactical requirements. For the test conducted by the Board, the cyclic rate was about 200 shots per minute.

Single shots can be fired by properly manipulating the trigger. Electrical power to operate the gun and fire the electrically primed 30mm ammunition is provided by a 24-volt DC battery pack. A 1.5-power M28C periscope sight was provided with the weapon tested by the Board.

The gun is manually traversed and

elevated by dual handles connected to the turret. The system's battery pack is recharged through coupling it into the vehicle's electrical system during non-firing periods.

The gun can fire US-made target practice, high explosive-incendiary, and high explosive-dual purpose cartridges; it can also fire 30mm United Kingdom and French rounds. The gun system, minus the feed system, sight, electrical system, and mount, but including the drive motor and recoil adapters, weighs about 146 pounds.

Six Military Police soldiers, representative of those expected to use the system, served as test soldiers. During the test, their primary duty was that of gunner. They were trained on the operation, firing, and maintenance of the chain gun system, and then they fired it at an aiming point located within the sensor area of an ACCUBAR accuracy transducer system.

The system's effectiveness against a vehicular target was tested when the test gunners fired single shots and multiple bursts at a panel that represented a vehicle at a distance of 800 meters.

The Army's Military Police School will use the test results to evaluate the chain gun's potential as a candidate for the heavy machinegun role in rear area combat operations.

Captain James D. Cambron, Small

Arms Test Division, was the test manager. The test noncommissioned officers were SFC Joseph Scott and SFC Bruce Smith.

**THE ARMY'S WHEELED VEHICLE FLEET** — from one-quarter ton through one and one-quarter ton — is to be replaced by two new vehicles: the High Mobility Multipurpose Wheeled Vehicle (HMMWV, pronounced "HUM-VEE"), and the Commercial Utility Cargo Vehicle (CUCV, pronounced "COOK-VEE").

The HMMWV will come in three versions — weapons, utility, and ambulance. Each will have a common chassis. As its name indicates, the CUCV will be a commercial non-development item of equipment.

The HMMWV will satisfy the Army's long-standing need for a highly mobile vehicle for the TOW weapon system. The entire TOW squad will then be on a single vehicle rather than on two vehicles as it must be now with the M151 vehicle. The HMMWV will also be used by scouts, as a mortar carrier, as a command and control vehicle, and as a cargo carrier. Its key performance requirements are:

- Diesel engine and automatic transmission.
- Ballistic protection from indirect fire fragments.
- Capable of going from 0 to 30 miles per hour in six to eight seconds.
- A gross vehicle weight of 7,500 pounds.
- A payload of 2,500 pounds, including personnel.
- Capable of being lifted by the UH60A (Blackhawk).
- Traverse an 18-inch obstacle.
- Run on flat tires.

An expedited development program has been set for the HMMWV, and contracts for prototype vehicles were awarded on 1 July 1981 to American General, Chrysler, and Teledyne Continental Motors. Each contractor will build six TOW carriers and five utility vehicles. These

will undergo competitive DT II/OT II testing beginning in May 1982. The source selection for production is now scheduled to take place in November 1982.

**THE ARMY'S ONLY MUSEUM** dedicated to the history of the Non-commissioned Officer Corps has opened at the Sergeants Major Academy, Fort Bliss, Texas. The exhibits depict the history of the corps by historical periods.

In addition to telling the history of the NCO Corps through artifacts, the museum will have a continuing oral history program. This will include a series of personal interviews with noncommissioned officers, both retired and still on active duty.

The curator and his assistants hope that people who visit the museum will leave with a better understanding of the history of the NCO Corps, and with a greater appreciation for the accomplishments and contributions that members of the corps have made to the country.

**FORT IRWIN, CALIFORNIA**, was activated as the home of the National Training Center on 1 July 1981.

The center will give the Army the most sophisticated and realistic training environment it has ever had. The Army's heavy combat units will rotate through the center for intensive two-week training periods. The present plans call for 21 heavy brigades and other specially selected Active Army elements to rotate through the center every year.

Two battalions will be permanently stationed at the center. They will act as the opposing forces and will be the best equipped and trained units of their kind in the Army.

When a rotating battalion has completed its force-against-force training, it will then conduct live fire training. The range at the center permits free play for both offensive and defensive operations and permits a battalion commander to use every

weapon he has. Smoke, artillery, attack helicopters, close air support, and electronic and chemical warfare also will be used to create a realistic combat environment.

**MEMBERS OF THE ARMY INDIVIDUAL READY RESERVE (IRR)** will soon have their own distinctive shoulder sleeve insignia.

The center of the red, white, and blue patch is a variation of the Adjutant General Center/U.S. Army Reserve Component Personnel and Administration Center insignia. It is



enclosed within a triangle that symbolizes the tricorne hat of colonial times.

The patches will be sent to separation points where they will be given to soldiers who are being transferred to the IRR. For those soldiers already in the IRR, the insignia will be included in the packets that order the soldiers to active duty training.

It is expected that the new insignia will create a sense of identity among the IRR members, and that it will keep them from having to buy and then sew on new patches every time they report for duty with a new unit.





# FORUM & FEATURES



## TANK KILLERS:

### The New Wave



ROBERT C. SMITH

*EDITOR'S NOTE: This article is the fifth in a six-part series. The final article will appear in our November-December 1981 issue.*

At the end of World War II, the situation was much the same as at the end of World War I, except that a clear and complete strategic superiority was held by the Western Allies, and especially by the United States, which was the only nation that had the atomic, and later the hydrogen, bomb. The power of this weapon, coupled with the obvious devastation inflicted on both Germany and Japan by strategic bombing campaigns, seemed to indicate that any future war would be fought from the air, with ground troops being used only to occupy the high ground after the war had been decided.

The result was that the U.S. Army kept its conventional World War II weapons simply because they were considered good enough for the perceived role of occupation troops. This concept was rudely shaken when North Korean troops, heavily

equipped with Soviet weapons and liberally supplied with Soviet T34/85 tanks, invaded South Korea.

The result was an ignominious retreat forced by a combination of the collapse of South Korean resistance, a lack of sufficient U.S. ground strength, the inadequacy of antitank doctrine and equipment, and a lack of U.S. and South Korean armor to counter the North Korean armored thrust. The South Korean peninsula was saved from total occupation by a series of brilliant maneuvers directed by General Douglas MacArthur, although his brilliance would later be tarnished by the entry of the Communist Chinese forces into the war, and by the subsequent stabilization of the front along, roughly, its present lines.

For the infantry, the campaign was an unmitigated disaster, at least as far as the early antitank measures were concerned. The 2.36-inch bazooka, which had been adequate against some of the German World War II tanks but not against others, proved to be virtually useless against the

T34/85 tanks. As a measure of the desperation felt in the United States, the 3.5-inch bazooka, small numbers of which were available, was rushed into full production. A shipment of these weapons was flown to Korea, and they were in action within a few days after the first U.S. troops were committed to the front — but not before the first units suffered from the 2.36-inch model's lack of stopping power. It has even been rumored that the United States considered buying *Raketenpanzerbüchse* and *Panzerfausten* in the international arms market. Although the story cannot be confirmed, it is an interesting one.

In a short time, the fighting boiled down to a series of positional battles, with both sides making some use of armor in limited actions. In any case, while the early days in Korea did provide a lesson in how not to run an antitank campaign, there were too few tank battles fought to draw a clear indication of the nature of future armored and antiarmor combat.

From the shock of those days, though, there did grow a requirement

for more modern weapon systems. At first, the requirement was met by the development of larger calibers of recoilless rifles. But it should have been obvious that this line of research would amount to nothing more than a modification of the trend in conventional artillery that was noted earlier — demands for increased penetration would lead inevitably to increased calibers, and even in recoilless rifles the increased calibers would require weights that were unacceptable in pure infantry weapons. The net result of this process would be that the artillery would wind up with a recoilless weapon that it neither wanted nor needed, while the infantry once again would be left exposed to enemy armor. As it turned out, the recoilless weapons did grow in size until they were effective only if they were carried on jeeps or specially constructed tracked vehicles.

The ultimate expression of the recoilless rifle design was probably the U.S. 106mm or the British MOBAT/WOMBAT series of weapons, which were heavy and quite vulnerable to counteraction because of their excessive backblasts. Further, each weapon could be effectively deployed only if it was self-propelled, since there had been a tremendous increase in mobility on the battlefield. Obviously, the existing weapons carried by tanks made these developments redundant, and eventually resulted in their almost total phaseout.

## NEW DEVELOPMENTS

During World War II, the Germans had developed a series of air-to-ground guided bombs for use against pinpoint targets. (These are the remote ancestors of today's "smart" weapons.) The initial version was radio-controlled; it was first used operationally to destroy the fleeing Italian battleship *Roma* and later in a variety of attacks on Allied shipping in the Mediterranean, including the ships gathered off the Anzio-Nettuno beachhead. The Allies soon devel-

oped electronic countermeasures to disrupt the bomb's fall, though, and once these were in service they gave almost total protection to Allied shipping.

The Germans had other similar weapons in various stages of development, including wire-guided and television-guided glide bombs, when the war ended in May 1945. One of these, in fact, an air-to-air missile — the X-4 — was in an advanced stage of development by mid-1945. Its initial test flights had been completed during the latter part of 1944 and its production was started shortly thereafter. It has been estimated that between 1,000 and 2,000 X-4s had been produced and were ready to be used when the plant in which the missiles were being assembled, along with its entire finished motor stock, was wiped out by an Allied bombing attack.

The X-4 project, in turn, had spawned the X-7, a diminutive version of the X-4. The X-7 was supposed to have a range of 1,000 meters and to penetrate more than 200mm of armor when used in an antitank role. It was to be a wire-guided weapon and was to use twin bobbins of wire to attain the best flight speeds. Although the X-7 was not as far along as the X-4 in 1945, it was basically a modified X-4 and it is reasonable to assume that it would also have been quite functional and a valuable combat asset to the German military forces.

There is some controversy over whether the French had access either to the X-4, which certainly seems possible, or to the X-7, no complete specimen of which is known to exist, or to both. In any case, the French managed to produce an almost identical version, the SS-10. It had a range of about 1,500 meters, and its warhead could penetrate some 250mm of armor. When it appeared, the SS-10 was popular almost everywhere; it was available and functional and was not expensive.

The SS-10 was built on solid engineering principles and had the advantage of being fielded with most of

its development work already completed, certainly an advantage for any weapon system and one that caused the U.S. Dart project to go by the boards.

The Dart project was a special one that had been started to give the infantry a long range, high penetration weapon. As originally conceived, the Dart was to be able to penetrate between 350mm and 400mm of armor by using a shaped charge warhead and was to have a minimum range of 350 meters and a maximum range of 4,500 meters. The missile itself was to have an infrared seeker for terminal guidance and was to use a wire guidance system to bring it into its final approach.

The Dart, though, suffered from a variety of problems and complications because of its weight — almost 90 pounds, compared to the SS-10's 33 pounds — and because of problems in its terminal guidance system. More important, the Dart system required an extended development period. Early in 1959, therefore, the U.S. Army formally adopted the SS-10 system.

Once it was demonstrated that a wire-guided antitank missile was technically feasible, many countries in the Free World began similar developmental work, producing missiles that ranged from the very good down to the very poor. Almost all of them were (and are) heavy and bulky, and all of the large antitank ones have the problem of backblast, just like the bazooka and the recoilless rifle.

## RANGE

Even more important in the earlier weapons was the problem of minimum range. The SS-10, for example, had a minimum range of approximately 325 meters before its missile was armed, and it needed to fly about 525 meters before the operator could get it under complete control. In close terrain, particularly, it was possible that the missile might reach a target before it was either armed or under control. Accordingly,



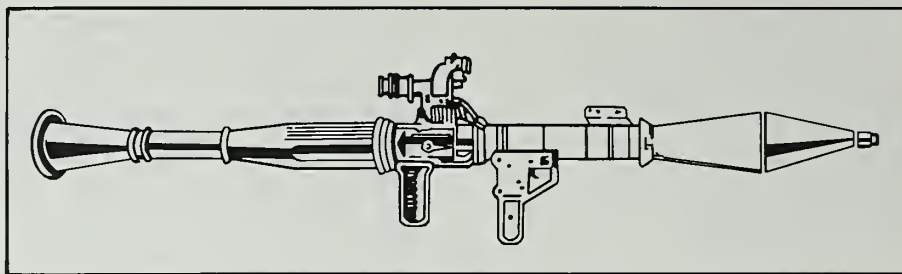
another series of efforts was undertaken by different countries to develop a new family of antitank weapons that would replace the bazooka-type devices, the variety of recoilless rifles, the standard antitank guns, and the flood of antitank missiles that the introduction of the SS-10 had unleashed. But the number of antitank missiles that were actually developed is so large that I can only cite certain general trends in this article.

The United States developed the M72 LAW family of weapons to replace the older bazookas for close-range infantry defense against armor. The LAW may be considered an effective replacement for the older *Panzerfaust*, and, like the *Panzerfaust*, it is cheap, expendable, and



U.S. LAW.

simple to use. The indicated maximum range of the LAW is around 1,000 meters, although an engagement at even 200 meters would be stretching the weapon's capabilities to their fullest. Various penetration claims have been made, indicating that the weapon, under ideal conditions, can pierce some 250mm of armor. Actual combat experience, though, has seemed to show that the LAW's penetration capability is substantially less than that. A variety of reports from South Vietnam indicated that the most successful way to engage heavy enemy armor was from the flanks or rear, or even from above; this would serve to put the LAW into the same category as re-



Soviet RPG-7.

coilless rifles, at least against heavy armor.

The Soviets have elected to keep the RPG-2/7 family of weapons in service for close-in defense against enemy armor attacks. The RPG-2 is totally inadequate against modern tanks and will probably not be encountered in the hands of the Warsaw Pact troops who are deployed in Europe. The RPG-7, however, has gained a considerable reputation as an antitank weapon. It gives superior penetration at greater ranges than the LAW but at the penalty of increased weight, although the penalty isn't all that severe.

The Soviets have also retained another weapon, this one a real relic out of the past — the hand-thrown antitank grenade. A number of reports and published photographs show Soviet soldiers being trained to use these weapons against enemy armor and in antitank ambushes.

On the subject of grenades, the rifle grenade for antitank use made its reappearance during the 1950s, with the Belgian Mecar Corporation being among the leaders in this development with its Energa series of grenades. Antitank rifle grenades have been greatly improved since the British first used them during the Battle of France in 1940, but they are still mainly last-ditch weapons.

A wide variety of antitank missiles is now available to the infantry. The smallest versions of these weapons are, in effect, improved versions of the LAW; perhaps the most interesting of these, both in terms of penetration and the fact that it is virtually flashless and without backblast, is the Armbrust 300, a German weapon.

The U.S. began looking for a weapon to replace the LAW some

time ago. The new weapon is the Viper, now in an advanced stage of development. But because there is some doubt about the Viper's ability to penetrate the frontal armor of enemy tanks equipped with advanced armor, the Soviet T-72 and the newer T-80 tanks will probably have to be attacked only from the flanks and rear by soldiers armed with the Viper, which makes it not really much of an improvement over the LAW.

Because manportable weapon systems are automatically subject to size constraints, an effective medium antitank weapon that can be distributed within an infantry company is desirable. Normally, these are considered weapons with a minimum range of engagement of about 60 meters and a maximum range of 1,000 to 1,500 meters. Most of the medium antitank weapons now in use employ the familiar wire guidance system, although there are some indications that the Soviets may eventually deploy a medium antitank weapon that uses some form of terminal guidance, much like the proposed Dart system.

The Dragon missile was developed to fulfill this need for the U.S. Army. The missile itself is rather novel in that it has an unusual propulsion system and a semi-automatic tracking capability. Reports do indicate, though, that the Dragon is only marginally effective; these reports cite its relatively short effective range of less than 1,000 meters (some say only 800 meters); its distinctive noise pattern, which derives from its propulsion system; and its backblast, which is quite large and considered by some to be excessive for reasonable safety.

The Soviets have also fielded a medium antitank missile system, the

Sagger, now somewhat elderly, which gained considerable notoriety in the 1973 war in the Middle East. The Sagger does have problems, including its need for an excessively large crew and its relatively low speed of flight, which gives a target more time to fire back or maneuver. But these deficiencies are somewhat offset by its excellent range, 2,500 meters, and by its ability to penetrate 400mm of armor.

The light and medium antitank missiles have the advantage of being so cheap in relation to the cost of other systems that one might think they would be quite widely distributed. An image can be conjured up of tens of thousands of missile-armed infantrymen dug in along likely lines

of enemy approach just waiting for their targets to appear.

This is not the case. While the missiles are relatively inexpensive, they simply aren't available at a low enough unit price that they can be distributed as widely as the *Panzerfaust* was. In addition, they need a considerable amount of support equipment to function at their best. The purchase of this equipment, combined with the usual budget constraints, tends to reduce the effective number of antitank weapons available to the infantryman.

Further, tanks are again being given a high degree of protection against enemy antitank measures by the introduction of new types of composite armor. The result is that

the infantry once more may be entering a period of vulnerability to armor.

Recent developments, however, have tended to reduce the problem, at least in theory. Foremost among these is, of course, the TOW, seemingly the best antitank guided missile available today.

**ROBERT C. SMITH** graduated from Rutgers University in 1970. Now living in New Jersey, he has long had an interest in military history and has been published in several military magazines. The material in this six-part series will be part of a book that will deal with the effect that technology has had on tactical and operational considerations.

## FITNESS and AIRBORNE TRAINING



FREDERICK N. DYER

WILLIAM P. BURKE

Running and airborne training are closely associated. They have been since airborne training began 40 years ago. But how important, really, is a person's running ability to his successful completion of the airborne training program? How important are the other dimensions of physical fitness?

From August to November 1978, a research team from the Army Research Institute Field Unit at Fort Benning, Georgia, collected data on strength and cardiovascular fitness (stamina) from all entering airborne trainees. The team, of which we were members, then related these data to whether or not a trainee successfully completed the airborne training program. In the research project we also

sought to answer the following questions:

- Are the differences in training success between male and female trainees a result of different levels of strength and stamina between the two sexes?
- Do the differences in the success rates of cadets, officers, and enlisted personnel actually reflect physical fitness differences?
- Which physical fitness test events are the best predictors of success?
- Are there differences in fitness and in success rates in airborne training among enlisted male trainees who come from different advanced individual training (AIT) centers?

We obtained data for the male

trainees from their scores on the Advanced Physical Fitness Test (APFT), which was then in use. The five events of the APFT were the inverted crawl, situps, horizontal ladder, "run, dodge, and jump," and the two-mile run. We obtained APFT scores for 1,631 enlisted trainees, 234 officer trainees, and 653 airborne trainees who were ROTC cadets. In addition, we collected data on 161 female trainees (75 enlisted, 17 officers, and 69 cadets) from their scores on the Women's Physical Fitness Test, which involved situps, pushups (from the knees), shuttle run, "run, dodge, and jump," and a one-mile run. Because 389 of the male trainees also had one-mile run times on their fitness scorecards, we later used



these times to compare the cardiovascular fitness between men and women. We obtained other background data on the trainees as well, such as which AIT center each recent AIT graduate came from.

For our purposes, we considered an individual successful if he finished his airborne training with the same group with which he started. Therefore, a failure was any trainee who was turned back or disqualified during the three-week training cycle. We found that there were six major reasons why individuals were turned back or disqualified: low motivation, poor physical fitness, medical problems, administrative problems, and failing either the mock tower or the swing-landing trainer phase of training.

## FIRST GROUP

The first group we looked at were the enlisted male soldiers. We found that 221 of them were turned back for administrative reasons or for failing on the mock tower or the swing-landing trainer. It turned out that these soldiers were only slightly less physically fit, on the average, than

the successful soldiers in the group.

At the same time, though, our data showed that the 325 enlisted male soldiers who were either disqualified for low motivation or turned back for poor physical fitness and medical problems had made much poorer scores on all five of the APFT events than had the successful soldiers.

And we also found that those soldiers who failed airborne training for any of the first three reasons listed — administrative, mock tower, or swing-landing trainer — had run the required two miles half a minute slower, on the average, than the successful soldiers, and that those who failed for any of the last three reasons — low motivation, poor physical fitness, or medical problems — had run the two miles a full minute slower, on the average, than the successful soldiers. There were almost no failures among the very fast runners because of low motivation, poor physical fitness, or medical problems. As the average time to run the two miles increased, however, the failure rate rose dramatically. For the slowest group, which required 18 to 20 minutes to run the distance, more than 40 percent were eventually disqualified or turned back for one or another of those reasons.

Although many of the soldiers who eventually failed had run the two miles in less than 15 minutes, and while many of the successful soldiers had run the two miles in more than 16 minutes, the average differences between the successful and unsuccessful groups told us that there was a substantial and statistically significant tendency for the fit soldiers to succeed and the less fit soldiers to fail.

(As an interesting aside, most of the medical problems that led to turnbacks were injuries that the soldiers incurred on their morning runs.)

For this particular group of airborne trainees — the enlisted male soldiers — our data indicated that a soldier's performance in the two-mile run was the best predictor of his eventual airborne training success. It accounted for twice as much of the

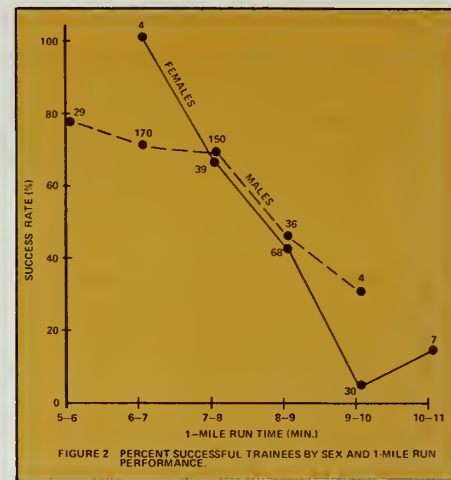


FIGURE 2 PERCENT SUCCESSFUL TRAINEES BY SEX AND 1-MILE RUN PERFORMANCE.

variance in the final analysis as the situp, the inverted crawl, or the horizontal ladder exercises. The run, dodge, and jump exercise was a much poorer predictor of airborne training success than the other four APFT events. These results told us that upper body strength, trunk strength, and stamina are all important contributors to airborne training success, with stamina being the most important. The new Army Physical Readiness Test which has replaced the Advanced Physical Fitness Test and the Women's Physical Fitness Test was designed to measure each of these factors.

## OTHER GROUPS

When we looked at the other groups, we found that the results were quite similar. Officers, ROTC cadets, and female soldiers who successfully completed the training had outperformed their unsuccessful counterparts on almost all of the fitness test events. The two-mile run also proved the best predictor of airborne training success for the male officers and the male cadets. For enlisted female soldiers, the shuttle run, "run, dodge, and jump," and the one-mile run were the best predictors of success. For the female cadets, it turned out that the one-mile run and the shuttle run were the best predictors. We could not make a valid comparison of physical performance for success and failure for female officers simply because there were too few of them.

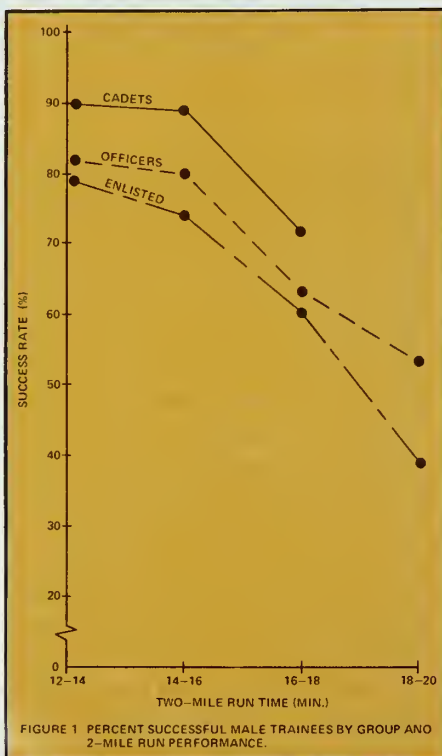


FIGURE 1 PERCENT SUCCESSFUL MALE TRAINEES BY GROUP AND 2-MILE RUN PERFORMANCE.

Eighty-six percent of cadet trainees finished airborne training without turnback or disqualification; this compared to 67 percent for officers and 61 percent for enlisted trainees. Cadets also ran faster than the other two groups. Their average two-mile run time was 14 minutes 35 seconds. For officers, average time was 15 minutes 37 seconds, and for enlisted personnel, 15 minutes 20 seconds.

The success differences among cadets, officers, and enlisted trainees do not result entirely from their fitness differences. Figure 1 shows a breakdown of success by the two-mile run. Even when men from the three groups ran at the same pace the success differences among the groups still appeared. Analysis showed that these group differences could not have occurred by chance; they reflect real differences that favor cadets over officers and officers over enlisted trainees. However, the differences in run times in Figure 1 are still better as predictors of success than membership in a cadet, officer, or enlisted group. For example, an enlisted man who ran the two miles in less than 14 minutes was much more apt to succeed than a cadet who ran the two miles in 16 minutes or more. (Only nine cadets ran slower than an 18-minute two-mile pace and for that reason no 18-20 minute point is plotted for them in Figure 1.)

At the time of our research, 71 per-

cent of the male soldiers completed airborne training without being turned back or disqualified. Only 42 percent of the female soldiers met our definition of success. The success rates for the male and female soldiers are shown in Figure 2, with a breakdown of their one-mile run times. The numbers by each plotted point represent the number of soldiers who ran at that pace.

The male soldiers were much more likely to run one mile in seven minutes or less than the female soldiers were. The latter were more likely to run the distance in eight minutes or more than the male soldiers were. But the interesting aspect of Figure 2 is that when the run times were taken into consideration, there was little difference in the rate of training success for the two groups. This comparison was only possible for the 7:00 to 7:59 and the 8:00 to 8:59 time groups because there were substantial numbers of male and female soldiers in each. The curves nearly overlapped for these times, which strongly suggested that physical fitness differences between the male and female soldiers accounted for nearly all of their training success differences.

### DIFFERENT CENTERS

Even before we started our research we were aware of the different

FIGURE 4 MINIMUM PERFORMANCE LEVELS ON APRT EVENTS FOR ENTRY INTO AIRBORNE TRAINING		
EVENT	MALES	FEMALES
2 MILE RUN	15 MIN. 59 SEC.	17 MIN. 55 SEC.
# SITUPS IN TWO MINUTES	45	32
# PUSHUPS IN TWO MINUTES	45	21

success rates between male and female soldiers in airborne training, as well as the differences between the ROTC cadets, the officers, and the male enlisted soldiers. But we did not know whether soldiers from different AIT centers had different success rates. When we analyzed our data, we found that there were differences among the AIT groups. The different AIT centers that contributed substantial numbers of soldiers to airborne training are listed in Figure 3. They are presented in the order of their success rates, which are shown in the second column. The final column presents the average two-mile run times for the male enlisted soldiers from the different AITs.

With the exception of Fort Gordon, the groups with the fastest average run times were the most likely to succeed. The success rates and the two-mile run times have undoubtedly changed since 1978 for the different AIT centers, but we expect that the same relationship between the average fitness test performances and the success rate still holds true.

This research project showed that physical fitness, especially fitness for running, is important for success in airborne training. When groups differed in training success they usually also differed in their physical fitness. In fact, the differences between men and women in training success appeared to be largely explained by their physical fitness differences.

Partly as a result of this research, the fitness standards for entry into airborne training have been made much rougher. For example, since June 1981, when the new standard became effective, men who were in the two slowest run categories (run times of 16 minutes or longer), are no longer allowed to start airborne train-

FIGURE 3

PERCENT WITHOUT DELAYS OR DISQUALIFICATION AND AVERAGE TWO-MILE RUN TIMES FOR ENLISTED MALES FROM SIX TRAINING CENTERS

AIT CENTER	(N)	PERCENT WITHOUT TURNBACK/DIS- QUALIFICATION	AVERAGE TWO-MILE RUN TIME
FORT BENNING	(789)	71	14.7
FORT LEONARD WOOD	(53)	67.9	15.0
FORT GORDON	(222)	66	15.8
FORT KNOX	(85)	62.4	15.3
FORT SILL	(102)	58.8	15.5
FORT JACKSON	(245)	54.7	16.2



ing. Figure 4 shows the standards for entry into airborne training under the new three-event Army Physical Readiness Test.

It is hoped that this research will help convince soldiers who are planning to attend airborne training to train themselves to very high levels of physical fitness. Hopefully, the commanders of soldiers who are scheduled to attend airborne training will also be influenced and will make it easy for their soldiers to achieve the needed physical fitness.

We believe that our research has meaning for all soldiers, not just those planning to volunteer for airborne training. Granted that airborne

training is not as stressful as combat, it is still one of the most stressful activities that soldiers can face during peacetime. If high physical fitness in-

creases the probability of success in this stressful training environment, it will surely help every soldier to meet the ultimate stresses of combat.

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**WILLIAM P. BURKE**, also an ARI research psychologist, is now with ARI Headquarters in Alexandria, Virginia. He previously served with the ARI Field Unit at Fort Benning for three years, during which time he reviewed all physical fitness requirements for both airborne and Ranger training. He holds a PhD degree from State University of New York at Stonybrook.

## VEHICLE MARKINGS



LIEUTENANT NOYES B. LIVINGSTON III

The U.S. Army does not seem to be taking full advantage of the benefits of using tactical markings on its armored vehicles. Its increased reliance on radio communication and its emphasis on camouflage and concealment have probably made hasty recognition devices appear unnecessary or undesirable in today's training. But I believe that the mobility, responsiveness, and personal leadership the Army needs to survive and succeed on tomorrow's extended battlefield make these aids as important today as they were more than six decades ago during World War I.

Then, the small American Expeditionary Force's two light Renault tank battalions used the colorful French recognition system, which was based on playing cards, to quickly identify their units and vehi-

cles (Figure 1). The white card background was usually painted on the rear quarters of the hull or on the sides of the turret. Its square, circular, or triangular shape represented one level of command, while the red or black symbol stood for another.

During World War II, the various combatant forces used designs of differing complexity for the same pur-

pose. For example, U.S. armor units most commonly employed informal systems of names, geometric shapes, or number or letter combinations. Typically, a battalion using names would have the vehicles from each lettered company adopt names that began with the company's letter designation. For example, Company B might have used Betty, Bobbie, or



FIGURE 1

Figure 1. World War I French and AEF markings. The French normally used all black symbols on a white field but occasionally they would reverse the colors to white on black. U.S. crews generally rendered each suit in its usual color.

Babe. The units that preferred to use shapes or code combinations conformed to a similar rational but unofficial plan.

The Germans used a uniform three-number code painted on the turrets of their tanks in red on white, or in white or black outline, which recognized four command levels. The first number on the left identified the company and its battalion; the next designated the platoon, and the third number gave the vehicle number and its role in the organization. For example, 431 on the turret of a tank showed that it belonged to the third platoon leader of the fourth company. Today, the Germans use a comparable system on their armor vehicles.

At the beginning of the war, the Soviets used a system that called for placing small numbers in a geometric frame on their armor vehicles. But by the end of the war they had adopted a

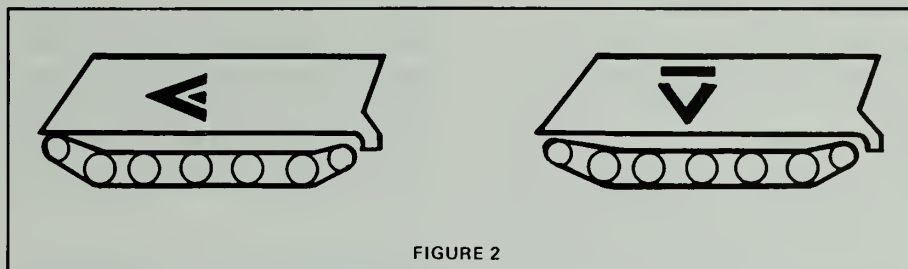


FIGURE 2

Figure 2. Tactical Vs on M113 armored personnel carriers. In the battalion system described in Figures 3 and 4, the APC on the left would belong to the commander of Company A, and the track on the right would be from the first platoon of Company B.

ing training exercises.

A tactical device should be large and simple enough so that it can be easily understood when viewed on the move through a periscope, even though it might be partially obscured by camouflage, dust, or poor lighting. It should not be so elaborate that it does not satisfy its primary purpose, which is to enable the members of a unit to quickly recognize their unit's vehicles in the heat of battle.

on the vehicle's hull or turret as shown in Figure 2.

The V portion of the mark should be used to represent the most important unit and command level being identified (in this case a company). The supplementary stripes, if used, can stand for a subordinate or a superior echelon whose reliable identification is not critical (in this case a platoon). The complete system is shown in Figures 3 and 4.

The Vs can be permanently applied by brush in any subdued neutral color, or stenciled with spraypaint on a vehicle's sides or turret. The system is easier to manage, though, if the Vs are put on with brown masking or package tape. The tape method also allows the markings to be removed when a unit comes in from the field if they are not appropriate in the cantonment area.

My mechanized infantry company has used this marking system in the field for several years. We have found that it improves our ability to employ arm and hand signals while mounted since the crews are better able to recognize and relate to each other visually. The Vs also help reduce radio traffic as there is less need to keep in touch to find out where everyone is. We can now tell at a glance as the

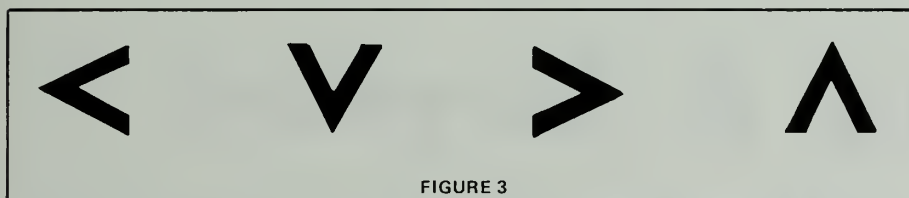


FIGURE 3

Figure 3. Company V markings in a battalion-wide system. The front of the vehicle is to the left in all examples. From left to right, the Vs stand for Companies A, B, C, and Headquarters Company.

large three numeral system similar to that used by the Germans, and they continue to use the same system today. The numbers are usually painted in bold white or yellow strokes on the sides of the turret.

After World War II, several U.S. units used a square, circular, or triangular background of various colors to represent different battalions. A contrasting color inside the geometric device was used to designate a vehicle's company, its number, and its platoon relationship.

I think these past systems, while decorative and well intentioned, attempted to provide more information than was really needed in combat. They were more suitable for finding a vehicle in the motorpool or for maintaining a formal battle formation dur-

I believe that the following proposed tactical armored vehicle marking system, which I have borrowed from today's Israeli armor force and the German air force of World War II days, is superior to any other system now in use, because the V-shaped markings do not have to be read or interpreted to be understood. The only thing an observer must be able to do is to recognize the V's orientation

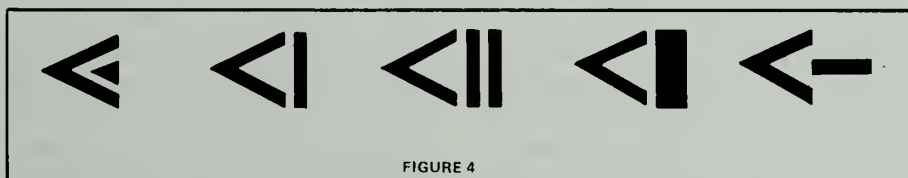


FIGURE 4

Figure 4. Vehicle markings for Company A in the battalion. The stripes allow the platoons to be distinguished at a distance. From left to right, the Vs stand for commander, 1st, 2d, 3d, and weapons platoon.



vehicles pop in and out of view.

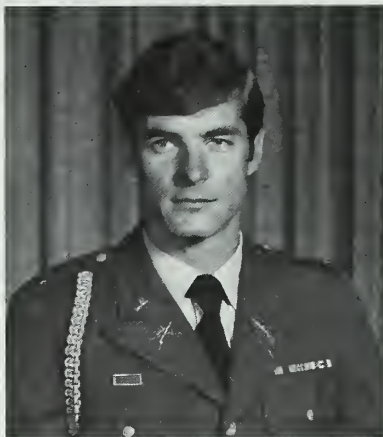
The quick mutual recognition provided by these markings allows a leader to concentrate on the more important aspects of an operation instead of having to wonder if his elements are still with him. The Vs encourage an aggressive "follow me" style of tactical leadership in place of push supervision from the rear. They also help avoid the problem that arises when several vehicles, in a moment of doubt, follow another unidentified vehicle that may be racing away on an errand of its own.

I do not think this system should be extended to higher commands, because this would defeat its goal of giving tactical information only to the members of the same small unit. It is not important that it be followed literally; any logical variation can be just as effective.

Tactical vehicle markings also help

to build a soldier's confidence in his unit because he can tell from them who is who on the battlefield. These markings will not make him any less frail, but they will help his unit fight more cohesively. And that's what we all want, isn't it?

In the uproar of combat, the contributions made by a dynamic tactical recognition system to command and control and to a unit's morale should far outweigh any negligible information that might be gained by an enemy.



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## Growing A Sergeant



**CAPTAIN JAMES F. GEBHARDT**

Taking soldiers and turning them into good noncommissioned officers is a subject that is dear to every infantryman who holds a leadership position. Bad sergeants can cause a lot of problems in a unit, but good ones can more than overcome them.

The development process should begin as soon as a soldier comes into a company. The commander should start off by briefing his new soldiers on his policies, including those concerning promotions. Then he should step back and let his noncommissioned officers take charge.

The only way to prepare soldiers to become NCOs is to let them handle

increased responsibilities as they demonstrate their ability to do so. The job of developing NCOs is not an easy one at best, but without training, counseling, and opportunity, it is impossible. The NCOs should provide the training and the counseling, while the commander should provide the opportunity.

Each company should have a clear, written policy on promotions. If the soldiers know what is expected of them before they can be recommended for promotion, then they will also know that they are responsible for meeting those standards. Of course, the standards should be rea-

sonable and should reflect appropriate criteria on such things as physical fitness, appearance, conduct, and technical skills.

One of the best ways for a commander to decide which soldiers to recommend for promotion to sergeant is to get the company first sergeant into his office alone with the list of eligible soldiers and talk about each one on the list. The commander should make notes on a separate piece of paper and require the first sergeant to justify his reasons for not recommending a certain soldier. After talking with his first sergeant, the commander should do the same

with the platoon leaders and then with the platoon sergeants. By the time he is through he should have collected at least two independent evaluations on each soldier, to which he should add his own. In cases where the first sergeant and a platoon leader or platoon sergeant disagree, the commander should review the facts and opinions, and, if necessary, interview them all again, perhaps as a group. In the end, the commander must make the decision.

It is a good idea for the commander to have his subordinate leaders counsel the soldiers who are not recommended for promotion. And he should retain a copy of the written counseling statement.

For the soldiers who are sent before a selection board, the first sergeant, who has experience in these matters, should brief all of them well in advance on the way the board will be conducted. No soldier should appear before the board unprepared. If the commander and the sergeants have done their jobs, and if the young soldier has done his, he will pass the board and be placed on the standing list.

The period of time that a corporal spends on the standing list for promotion to sergeant is critical in the development cycle. He is like a young bird standing on the edge of the nest, waiting to make his first flight. If he doesn't learn a few flying techniques before he leaps into space, his first flight can end in disaster. At this point, therefore, it is a good idea to call the soldier in and discuss the duties he will assume as an NCO. Many young soldiers are surprised to learn that these duties, responsibilities, and privileges are clearly spelled out in Chapters 2 and 4, AR 600-20.

This is also the proper time to talk to the soldier about his peer group — the soldiers he must leave behind — which may be the most difficult transition for him to make. But there are some steps a commander can take to help him make it. One is to separate the soldier physically from his peers by moving him into an NCO room. If

he does, though, the commander should be selective in his choice of a roommate for the soldier. A good sergeant who will help the soldier learn his new role is the ideal choice.

## TRANSFER

Sometimes a company commander will go so far as to transfer the soldier to another platoon, but there are several things he must consider if he plans to do so — MOS imbalances, unit strength, and, of course, the needs of the soldier and the unit as a whole.

Another technique that can be used in this fledgling stage is to pin acting sergeant stripes on the soldier. There are advantages and disadvantages to this approach. If the soldier is assigned duties as an NCO, it is only fair for him to have the authority to match. But the acting sergeant must understand the limits of his authority. Under the Uniform Code of Military Justice, he is still a corporal and thus is not afforded the legal status of a noncommissioned officer in the performance of his duties.

Finally, the company commander should make sure that this soon-to-be NCO continues to be counseled by his immediate supervisor, who in all cases should be another NCO. It is absolutely essential that the other NCOs in the unit take an interest in this soldier who will soon join their ranks. When he is required to leave his peer group, he must be provided with one to take its place, and that is the noncommissioned officer corps.

When the soldier reaches the cutoff score and his orders have come in, it is time to promote him. This is a big step in his life, and it should be a memorable one. A formation should be held, with enough advance warning to the soldier so that he can invite family or friends. The soldier to be promoted should be the focal point of the ceremony. It might be all right for the commander to say a few words about duty and country, but he shouldn't talk about the last inspection of the area.

After the formation, the NCOs of

the company should welcome the new sergeant into their corps. And most command sergeants major are happy to participate.

Bringing a young soldier to this point is only the beginning of the commander's task of developing a good NCO. Each troop unit in the Army has a noncommissioned officer professionalism program; some are more effective than others. The program is usually under the control and supervision of the battalion's command sergeant major, who answers to the battalion commander. Each company commander should use the program if it is good or work through his first sergeant to make it good if it is not.

## PROGRESS

The commander should make sure the program addresses both technical and leadership training areas. He should also take advantage of all outside resources, including the Noncommissioned Officer Educational System. He should periodically review the new sergeant's progress with the first sergeant and the other subordinate leaders in the unit. More than that, he should take an interest in the sergeant himself for a few months to make sure he gets off to a good start. In doing this, the commander will be able to evaluate the NCO's performance, and also to judge the effectiveness of his NCO development program. With patience, teamwork, and a little luck, the new sergeant should develop and mature quickly.

But what if he doesn't? What if the system has failed and the commander finds himself with a sergeant who doesn't perform to the required standards? What does the company commander do then?

He should begin a counseling program for the sergeant. The platoon sergeant and the platoon leader should counsel him, and then the first sergeant and the company commander.

If the problem is misconduct, the solutions are usually obvious: they



range from formal counseling statements to the application of the UCMJ. The commander should be hard, but fair.

If the problem is inefficiency, the solution is also there, but it is more time-consuming. It is difficult to prove inefficiency, but by no means impossible. The first step is to go back to AR 600-20 and identify the four major responsibilities that every NCO has. Briefly, these are to train his subordinates to competency in their MOSs, to supervise the maintenance and accountability of all government property issued to his subordinates, to account for his personnel at all times while they are in a duty status, and to insure that his section, squad, or team is trained to perform its mission.

These are pretty straightforward tasks, and the new sergeant's failure to accomplish any or all of them should be obvious to anyone who is really looking. So the commander and his subordinate leaders should look at these four areas when they suspect incompetence. They should

take notes, of course, and begin counseling immediately. Nine times out of ten, this will bring prompt improvement. Sure, some young sergeants (and a few old ones) need more counseling than others, but that is what platoon sergeants, platoon leaders, first sergeants, and company commanders are paid to do.

But sometimes, in spite of the best efforts of all these people, an NCO is still ineffective. The solution then lies in AR 600-20; it is called reduction for inefficiency. If the commander has made a sincere effort through counseling to help the sergeant, and if he

can document both the sergeant's ineffectiveness and his own corrective efforts, he will have no trouble convincing the battalion commander to reduce the sergeant. At this point, sometimes it is a good idea to request that he be transferred to another unit.

If a company commander and his subordinate leaders have done a good job throughout this development process — from the first day of a soldier's arrival — the company should end up with very few of the bad sergeants who cause problems in a unit and a lot of the good ones who overcome the problems instead.



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# NCOSI

STAFF OF NCOSI

In today's Army, a noncommissioned officer has to be a manager, a leader, and a diplomat. But his most important role is that of a trainer, because his primary job is to teach his soldiers what they need to know. Since 1974, the Noncommissioned Officer School of Infantry at Fort Benning, Georgia, has been dedicated to the task of seeing that all

infantry NCOs receive the training they need to train others.

The School, best known as NCOSI, is organized as a separate battalion of The School Brigade, U.S. Army Infantry School, with a headquarters company and two letter companies. Unlike other battalions, NCOSI is commanded and staffed by senior NCOs — the battalion com-

mander is a command sergeant major, the deputy commander is a first sergeant, and the companies are commanded by first sergeants with sergeants first class as unit first sergeants.

The mission of NCOSI is

- To provide command, administrative, and logistical support to the soldiers who attend its Advanced

Noncommissioned Officer Course (ANCOC) classes.

- To provide instruction in the skill level tasks for the Primary Leadership Course (PLC) for Combat Support and Combat Service Support, for the Primary Noncommissioned Officer Course for Combat Arms (PNCOC/CA), and for the Basic Noncommissioned Officer Course for Combat Arms (BNCOC/CA), in conjunction with prescribed training for cadre personnel.

The Primary Leadership Course trains combat support and combat service support soldiers in the skills and attitudes they need for promotion into positions in which they will directly train, lead, or supervise subordinates in performing their assigned duties.

The PNCOC/CA and the BNCOC/CA are the first two phases of training in the Noncommissioned Officer Education System (NCOES). The PNCOC/CA is designed to develop leadership skills and techniques in soldiers in the rank of corporal or specialist four. Those who attend are soldiers who have been selected by their commanders as having the potential to become NCOs.

The purpose of the BNCOC/CA is to teach highly skilled NCOs who are

already fully competent in the Skill Level 3 critical tasks for their MOSs to train their subordinates to operate, employ, and maintain their weapons and equipment.

The ANCOC is designed to prepare selected staff sergeants to serve as platoon sergeants and assistant operations sergeants. The best qualified staff sergeants throughout the Army in career management field 11 are selected by Department of the Army boards to attend the course.

#### COMMANDERS

Dec 74-Nov 75	CSM Henry Caro
Dec 75-Mar 77	CSM Firman Sowers Jr.
Mar 77-Jun 79	CSM Frank A. Caito
Jun 79-Mar 80	CSM Charles E. Bohon
Mar 80-May 81	CSM Russel Anderson
May 81-Present	CSM P.D. Rosano

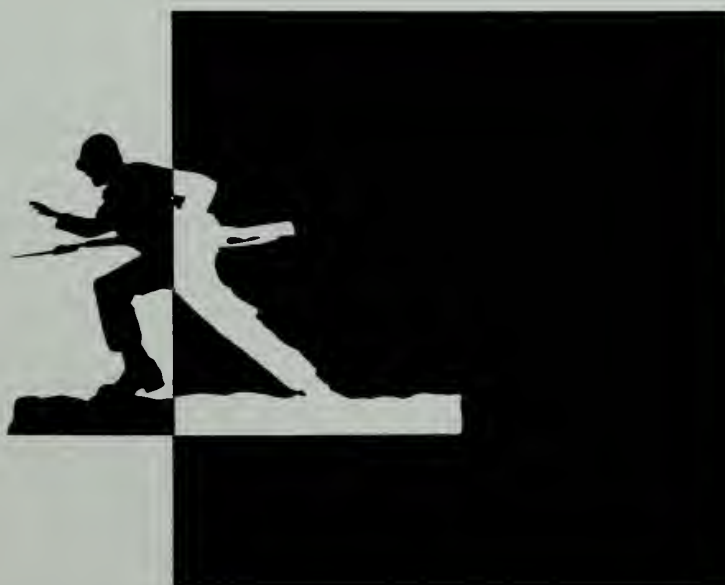
The POIs for all the courses are structured and developed around Soldier's Manual tasks. Classes in the first three of these courses — PLC, PNCOC, and BNCOC — are conducted by dedicated instructors employing the small group concept. The POI for the ANCOC is developed by the Directorate of Training Developments and implemented by USAIS instructional departments.

The NCOSI provides PLC,

BNCOC, and PNCOC instruction for Army installations in the southeastern region of the United States and in Puerto Rico and Panama. U.S. Air Force security personnel are also trained in the BNCOC 11B track. All students are in a temporary duty status while attending the various courses, and, with the exception of ANCOC students, they are required to live in the barracks.

All of these courses operate under the assumption that even though an NCO has mastered the tasks for his skill level, he may not be qualified to instruct others in these tasks. Officers or NCOs who are assigned to training positions are usually thoroughly prepared to conduct training, but soldiers who are assigned as fire team leaders, squad leaders, section chiefs, or platoon sergeants of infantry units usually have not received the instruction they need to be trainers.

The primary aim of the NCOSI is to turn out soldiers who are highly trained, highly motivated, and highly skilled in infantry techniques and doctrine and who have the ability to teach their subordinates the skills they need to be effective and to survive in combat, regardless of their duty positions or assignments.





# YORKTOWN

1781



LIEUTENANT MICHAEL E. LONG



It can be said that the American Revolutionary War ended in a song. On Surrender Field at Yorktown, 19 October 1781, the British bands played “The World Turned Upside Down” as General George Washington, alongside his French ally, Lieutenant General the Comte de Rochambeau, accepted the surrender.

It is difficult to believe that the soldiers who stood there so proudly with Washington belonged to the same army that had been handicapped by short-term enlistments and unreliable militia drafts, an army that was ill-supplied and ill-disciplined. But that army had overcome all hardships through more than six long years of arduous warfare, and its men had endured, and in the end, triumphed.

During that period almost 300,000 men had enlisted in the army at one time or another out of a total population of only 2.5 million. That figure is a remarkable one for a society in which any sort of military establishment was regarded with suspicion.

Like today’s army, the army of the American Revolution was all-volunteer, and the one-army concept then meant the Continental Army combined with state line units and local militia organizations.

Recruiting was a constant problem, partly because enlistment periods were short — sometimes only one year. (Some men thought even that was too long.) Some states used a quota system to obtain either men or money, and some recruiters offered a bounty of money or land to induce enlistments. But for the most part the success of these efforts depended on the patriotism of the individual or on his desire for adventure.

There is no doubt that most of the men who joined the army were individualists; they were ill-disciplined, often talking back to officers and refusing to obey, particularly in units where they had grown up with the officers. Privates had a hard time understanding why they had to stay in camp when they weren’t on duty or why they had to follow certain regulations, especially such silly conventions as powdering their hair. In any case, the powder was usually flour, which could be put to better use elsewhere.

Because of the short-term enlistments, they also felt they had little to lose by defying authority. Washington wrote: They “come in, you cannot tell how; go, you cannot tell when; and act, you cannot tell where; consume your Provisions, exhaust your Stores; and leave you at the last critical moment.” Desertion was common, but the punishment for this and other offenses was generally quite lenient.

Even distinctive uniforms might have helped to instill pride and discipline among them, but they usually had none. The average militiaman’s clothing consisted of one or two waistcoats, a pair of duck breeches with hat, stockings, and shoes of various kinds, depending on what he liked or happened to have on hand. The regular soldier sometimes looked better, sometimes even worse.

Although these soldiers, particularly the militiamen, tended to be better marksmen than the British regulars they came up against, they came into the army totally

unskilled in warfare, timid, and as Washington said, “ready to fly from their own shadows.” But they learned quickly not only how to fight but how to do it with a minimum of clothing and food. As for medical help, there was usually none, and the sick or wounded had to be cared for by their fellow soldiers until they either recovered or died.

There were some serious incidents, such as the mutiny of 1,300 troops of the Pennsylvania line early in 1781. But even these men can be considered to have been remarkably patient under the circumstances: Some of them had not been paid for a year, and some claimed they were being held beyond their enlistment periods.

## SPIRIT

Despite these hardships, though, the soldiers had several qualities that sustained them — they were adaptable, resilient, and patient. Perhaps the most important thing the American soldiers had going for them was their enthusiasm for their cause. They were, after all, fighting for the very independence of spirit that made them the way they were.

Eventually, if they stayed in the army long enough, they got the military training they needed — especially after Baron Friedrich von Steuben arrived on the scene and took responsibility for their training.

The Revolution was essentially an infantryman’s war, and his chief weapons were the flintlock musket (maximum effective range between 80 and 100 yards) and a bayonet. Contrary to popular opinion, these soldiers did not hide behind trees to fire while the British soldiers wore red coats and marched out in the open in formation. Military tactics were essentially the same for both sides. The British soldier was trained for and skilled in close order line of battle, and the American soldier could only accept this style of fighting.

Little use was made of artillery, partly because of a lack of experience among the Americans, but also because it was cumbersome in wilderness conditions. The colonies of Pennsylvania and Massachusetts did begin casting cannon in 1775, but Washington’s Chief of Artillery, Henry Knox, relied heavily on British sources of information, such as Muller’s *Treatise of Artillery*.

And until France entered the war, there were no engineer officers as such in the American Army. Nearly all of the existing fortifications had been designed or erected by French and British engineers.

By the time of the Southern campaign in 1780-81, the American soldiers for the most part had become hardened campaigners; they knew their weapons, and they had learned how to make fierce bayonet charges and how to build fortifications. All of these skills were to come in handy at the final battle.

Although the British Army under Major General Lord Charles Cornwallis was victorious at Charleston and at Guilford Courthouse, losses in these battles, along with the disaster at King’s Mountain, had weakened his force



to the extent that he could not capitalize further. Cornwallis then moved to Wilmington, thus setting the stage for the final campaign of the war.

Cooperation was the key word in the months that followed. There was an unprecedented amount of it between the American and French forces, on land and sea, and practically none between Cornwallis and Major General Sir Henry Clinton, his superior in New York.

In the late spring of 1781 Cornwallis moved his forces farther north to Virginia without Clinton's approval. There he operated near Richmond against Lafayette's Continentals. Clinton favored using whatever forces he

an escape by sea, Cornwallis would be trapped. Washington had two months to plan the operation and move 450 miles to the south.

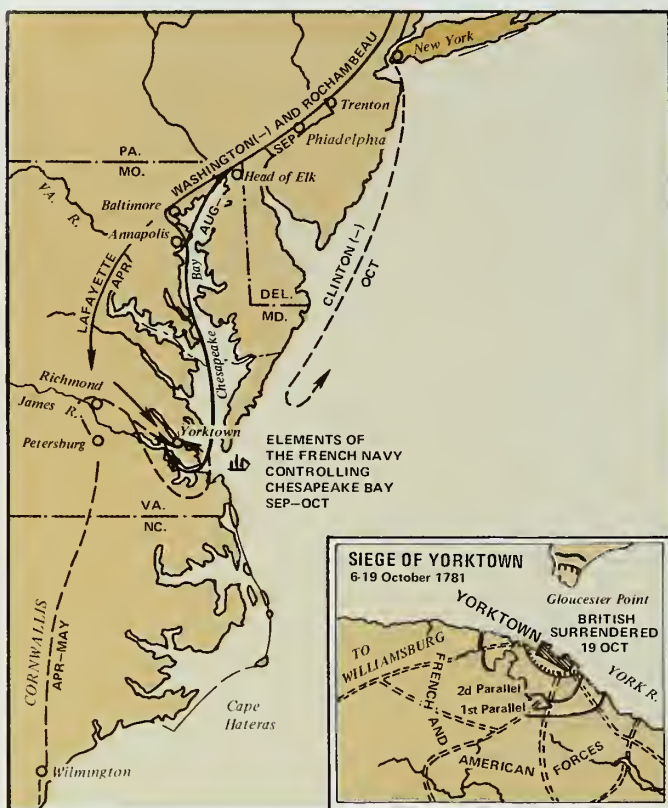
At this point, he abandoned his plans for a campaign in New York, developed a cover plan to deceive Clinton, and sent orders to Lafayette to contain Cornwallis at Yorktown. At the same time a French squadron of eight ships set out from Newport to join de Grasse.

The route south lay overland through New Jersey, Pennsylvania, and Maryland to Head of Elk, Annapolis, and Baltimore, where boats would take the men down the Chesapeake and up the James River to a landing near Williamsburg.

De Grasse's fleet arrived in the Chesapeake Bay on 30 August and dropped off 3,000 French troops to join Lafayette. On 5 September, de Grasse encountered the British naval squadron and fought an indecisive action off the Virginia capes, during which the flotilla carrying the French and American troops got past into the James River. When at the end of the maneuvering de Grasse got back into the bay and joined the fleet from Newport, the British naval commander, clearly outnumbered, withdrew his force to New York to refit.

## SURPRISE

The arrival of the French fleet was a complete surprise to Cornwallis. Although he had known that de Grasse might bring some ships from the Indies, he had not expected more than the Royal Navy squadron could handle. It had been his intention to use Yorktown as a sort of winter quarters with the York River providing access for reinforcement or withdrawal. He immediately adopted a



had in Virginia only as one arm of a pincers movement against Pennsylvania (the other arm being from New York). Cornwallis, on the other hand, wanted to make Virginia itself the chief British "seat of war," even if it meant abandoning New York.

Clinton ordered Cornwallis to return to the coast and establish a base and to return part of his force to New York. Cornwallis did return to the coast and set up a base at Yorktown, where he felt safe as long as there was British naval superiority. But he did not send any of his troops north. After changing his mind several times, Clinton in the end failed to insist upon it.

Washington, meanwhile, was hoping for an opportunity for a decisive victory in New York against Clinton's forces. But in August, he learned that French Admiral Francois de Grasse planned to bring part of his fleet from the West Indies into the Chesapeake, where he could stay only until mid-October. Washington then saw that by combining his troops with those of Rochambeau he could destroy Cornwallis's force at Yorktown before Clinton could relieve it. With the French fleet cutting off



defensive posture, constructing earthwork fortifications and quartering soldiers in homes and public buildings.

Washington's army arrived in the area on 26 September and was immediately bolstered by Virginia militiamen, who came pouring in. When the guns and other heavy equipment arrived by sea from Newport, the army had all it needed for a siege — water, food, materials from the wooded countryside for building defenses, and superiority in artillery and manpower. The combined army numbered about 15,500 while Cornwallis had something less than 8,000, including loyalist and German troops.

On 6 October the main allied force began breaking ground for its formal siege. To divert attention from the main effort, the troops started a flying sap toward the right of the British lines. Meanwhile, engineers staked out the trace of the 2,000-yard-long first parallel and work parties began to dig. By morning the men had shoveled enough dirt to protect their trench and four redoubts.

The first allied batteries began their bombardment on 9 October, and by mid-morning the artillery fire had caused such damage that the British could return no more than six rounds per hour.

In preparation for an assault on two redoubts on the left side of the British lines, the direction of Washington's main effort, French engineers supervised the construction of an epaulement on the east end of the second parallel as near the redoubts as possible. On the 14th, using all possible artillery, an American assault column of 400 men under Alexander Hamilton attacked one of the redoubts, while 400 French grenadiers and chasseurs attacked the other. Slowed down by the obstacles protecting the redoubt, the French took heavy casualties. The Americans fared better, chiefly because they scrambled through the obstacles and into the redoubt without waiting for axmen to clear gaps. The French, being formalists and trained soldiers, went by the book and insisted on having the way cleared before they would enter the redoubt.

The allies immediately threw up a protective wall of dirt at the back of the redoubts and began to incorporate them into the second parallel, which had been started earlier. When the parallel was completed, guns were moved up. In a British sortie on the 16th, these guns were

spiked, but not very effectively; they were back in operation within six hours.

## SURRENDER

Cornwallis made an attempt to consolidate his forces on the opposite side of the York River during the late evening hours of the 16th, but failed because of too few boats and because of severe weather. He was trapped. Following a council meeting with his officers, he reported that they could not "fire a single gun . . . I therefore propose to capitulate."

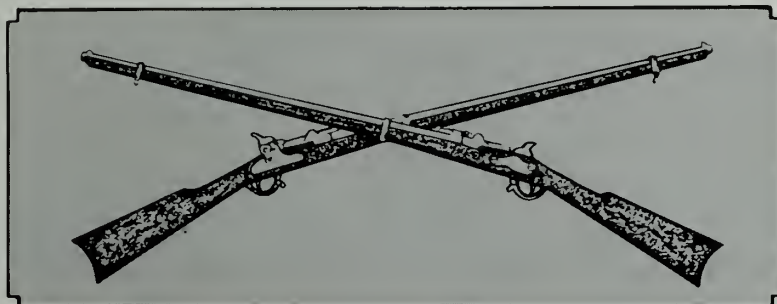
It would be two more years before the war was truly over, but both sides knew that this was the end. The world *had* been turned upside down, and a new nation had been created in the process.

Although this nation celebrated its bicentennial in 1976, 1981 also deserves a celebration. It was one thing for our forefathers to declare their independence; it was quite another for them to fight for more than six years to make that independence a reality.

The divided leadership of the British, the close cooperation between the Americans and the French, and sheer luck — all of these contributed to the outcome of the battle of Yorktown. But there was another vital ingredient — the fighting spirit of the men who won that battle. That was the true spirit of victory.

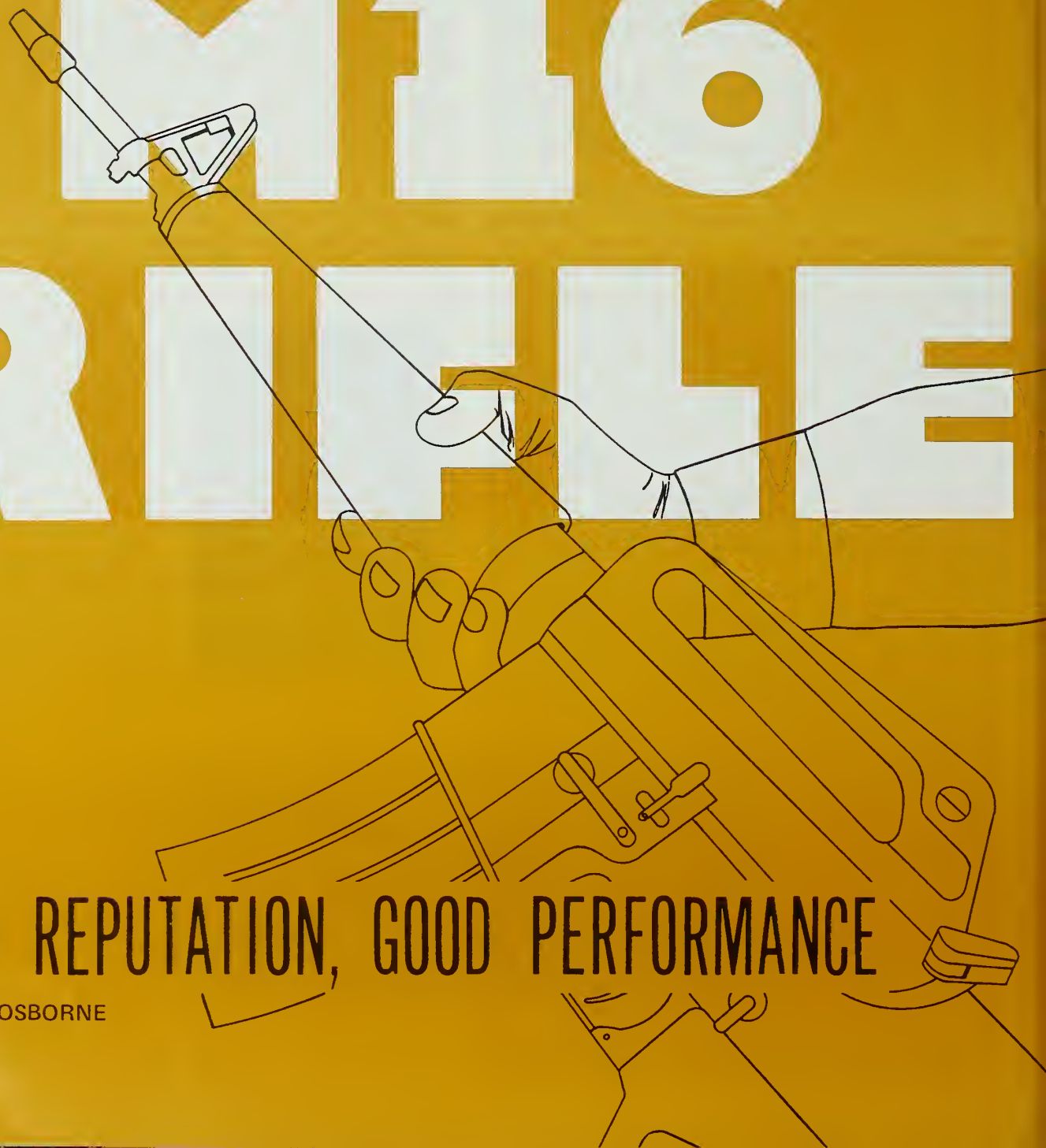


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# THE M16 RIFLE



BAD REPUTATION, GOOD PERFORMANCE

BY ART OSBORNE

**AUTHOR'S NOTE:** *The opinions expressed herein are my own, although I acquired much of the information that appears in this article while working with Litton Mellonics, under contract to the Army Research Institute (ARI), responding to research requirements established by the Infantry School. Dr. Seward Smith, Chief of the ARI Field Unit at Fort Benning, participated in and supervised all of the marksmanship research efforts. A discussion of the research that was conducted to develop a new basic rifle marksmanship (BRM) program appears in the July-August 1981 issue of INFANTRY.*

*I hope to encourage all soldiers to take a more positive attitude toward the M16 rifle and to use the Army's new marksmanship training program to better their marksmanship skills. The weapons firing data presented in this article is taken from the Litton Mellonics/ARI Report Number 1265, Adequacy of M16A1 Performance and Its Implication for Marksmanship Training, co-authored by Drs. John Morey and Seward Smith.*

*Requests for additional information or copies of research reports should be sent to the Army Research Institute, P. O. Box 2086, Fort Benning, Georgia 31905.*

Holding the rifle high so that we could all see it, the sergeant told us it was the best military rifle in the world. He believed that — and we did, too. But that was basic combat training, 23 years ago, and the sergeant was holding an M1 rifle.

Just the other day I was looking at a rather large shot group that had just been fired by a trainee. Sensing that I was not impressed with his performance, he told me it was the best he could do “with a piece of junk like that” — pointing to his M16 rifle.

A few weeks ago, during a casual conversation at a social function, the subject of rifle marksmanship in the Army came up, and a gentleman with no previous or current connection with a military service asked me when the Army was going to get a decent service rifle. His attitude is probably a reflection of the derogatory treatment that has been handed out on the M16 rifle by the news media. National magazines, newspapers, and television programs continue to take potshots at the M16 rifle and typically present a very negative view of its capabilities.

To me, incidents such as these are most unfortunate, for if the Army is ever to have an effective rifle marksmanship program, its soldiers must have complete confidence in their service rifle. Many of today's soldiers — trainees, noncommissioned officers, and officers alike — do not have confidence in the present service rifle, the M16A1.

The seriousness of this crisis in confidence was brought home most forcefully to me a few years ago during one of our initial briefings to personnel from the Infantry School. Our preliminary research on the Army's marksmanship program at the time had revealed that a major problem with it was a lack of feedback, or precise bullet strikes as opposed to gross hit and miss information. When we mentioned this, one of the officers in the room stated that feedback was inappropriate when firing the M16 rifle. He said the rifle was so inaccurate and scattered bullets to such an extent that knowing where any one bullet had hit was meaningless. Unfortunately, at the time, we did not have sufficient valid data to refute his position, but we were almost certain that he was wrong.

It then became clear that if we were going to develop an effective marksmanship training program our re-

search efforts had to be expanded to include determining just how well the M16 rifle would fire so that we could make the most of its strong points. Accordingly, we selected 60 rifles at random — 30 from trainees who had just completed their initial entry training and the other 30 from Fort Benning's Weapons Pool. Several of them had been used at Fort Benning for many years. (We also selected an average lot of service ammunition and fired some 5,000 rounds from it during the various tests.)

We subjected the 60 rifles to different firing tests to determine their accuracy and their adequacy and to gather certain theoretical, training, and ballistics information.

With support from the Army Marksmanship Unit at Fort Benning, the weapons were fired from a cradle (a vise-like mechanism) to get accuracy data for three-round shot groups. This is what we recorded:

25-Meter Group Size	Number of Rifles	Percent of Total
2 cm or smaller	36	60%
2.01 - 2.99 cm	15	25%
3 - 4 cm	7	12%
over 4 cm	2	3%
	60	100%

We evaluated the weapons on their ability to hit personnel-sized targets out to ranges of 300 meters. Based on visual angle, a weapon that fires a shot group four-centimeters or smaller at 25 meters will also hit a silhouette target 19 inches wide at 300 meters. Using this criterion, and not allowing for wind or other variables, we found that 97 percent of the weapons would hit a silhouette target at 300 meters with every bullet fired.

To allow for human error and other variables, though, a rifle really should be able to fire 25-meter groups smaller than three centimeters if it is to be used to obtain consistent hits on silhouette targets at 300 meters. Only 85 percent of the tested rifles met this criterion. The nine rifles that did not were old and loose, not the kind I have seen in tactical units.

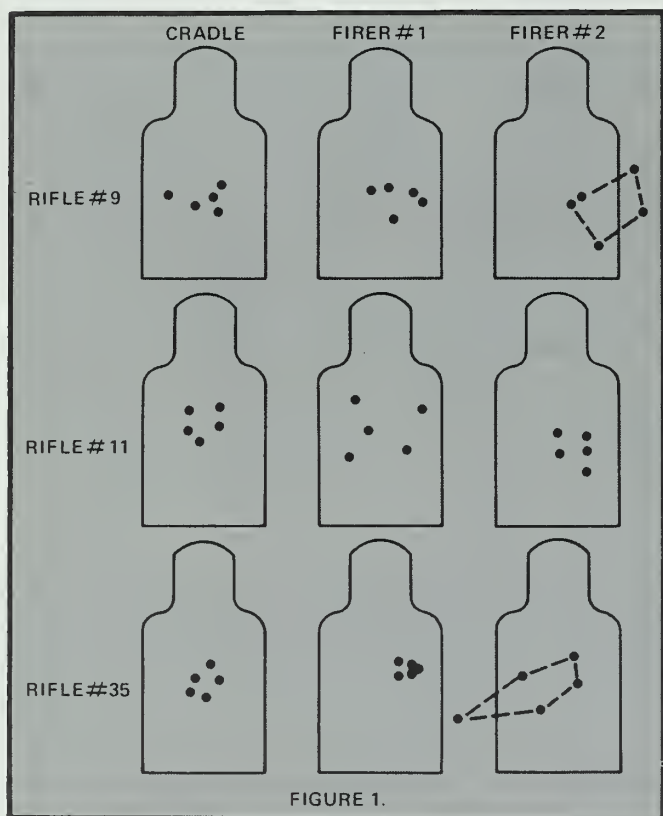
As an aside, these rifles had passed all of the Army's serviceability checks. Thus, while today's standard serviceability checks might identify most bad rifles, they might not identify all inaccurate rifles. The most practicable procedure for identifying rifles that pass ser-



24 viceability checks but will not shoot accurately is to have the suspect rifles test fired by an experienced marksman. It is most important that the bad apples be purged from the system.

## LATER TESTS

During the later firing tests, we fired 250 rounds into targets placed at three different ranges — 150, 250, and 300 meters. There were no recorded misses at 150 meters, and few of the misses at 250 or 300 meters were the fault of the rifle. The targets in Figure 1 show nine different five-round shot groups on standard “E” silhouettes; the range was 250 meters. Each of these was an initial shot group, fired after each rifle had been zeroed at 25 meters. The targets on the left were fired from a cradle; the targets in the center and on the right were fired from hand-held supported positions.



While rifle maintenance was not a formal part of our research effort, we did maintain records on weapon failures throughout our testing. Most of the firing was conducted with nine rifles, a representative sample (from good to bad) of the 60 rifles. To make sure that the weapons were in the same relative state of cleanliness, we decided not to clean any of them until an increase in shot-group size or in the number of firing malfunctions indicated that they should be cleaned.

We did not have to clean any of the weapons during the test. In fact, during a period of five weeks, we took the nine weapons to an outdoor range facility fifteen times, fired them from sandbag supports, and exposed them to the normal dust and grit found on such a range. During

that period, we fired approximately 700 rounds through each of three of the weapons and about 500 rounds through each of the other six. We found it interesting that the few malfunctions we experienced happened during the early stages of the firing and that there were no malfunctions during the firing of the last 1,500 rounds.

On a recent trip to Australia, we discovered even more evidence to prove that the M16 rifle can do the job it is supposed to do. There, we used 32 Australian soldiers who were nearing the end of their initial entry training period to run an experimental test of a new target system. The Australian Army's primary service rifle is a Fabrique National (FN) 7.62mm weapon, which many consider one of the best military rifles in the world. The Australian Army uses the M16 in a carbine role, for leaders, reconnaissance elements, point men, and the like.

The Australian soldiers fired M16s for our experiment, shooting at moving targets at ranges of 50, 100, and 137 meters and at stationary silhouette targets at 300 meters. While the soldiers liked their FN rifles, the majority said they favored the M16 for the particular target array we were using. And while our own soldiers can only register hits 30 percent of the time on a similar target array, the Australian soldiers hit 80 percent of the time. It was not unusual for the 300-meter target to be hit with every bullet in strings of from 10 to 50 shots.

We also observed a week of U.S. Marine Corps marksmanship training. The Marines use a known distance (KD) course for both training and qualification and shoot at ranges of 200, 300, and 500 meters. While many Marines share the Army's negative attitude about the M16, I was impressed because their above-average recruits had better than a fifty-fifty chance of hitting a standard “E” size silhouette target at 500 meters.

## INDICATIONS

The information presented so far should indicate that M16 rifles in the hands of well trained soldiers are accurate and dependable weapons.

Why, then, do our soldiers — and others — feel the way they do about the M16? There are a number of reasons.

One of the major causes for the negative attitude held by so many people stems from the quality of the rifles and the ammunition sent to Vietnam around 1965. Because of inexcusable bureaucratic incompetence, these rifles were not fit to be issued to an American soldier in combat. The M16 acquired a bad reputation then from which it has never fully recovered. And, yet, major modifications have been made to the rifle and its ammunition since that time, and there is no available data to suggest that the bad reputation is still warranted.

(My own experiences with the M16 while serving with the 1st Brigade, 101st Airborne Division in Vietnam during 1967 and early 1968 were very positive. It proved to be a dependable and rapid firing combat weapon that

allowed us to quickly gain fire superiority during our firefights with hostile forces who were using the AK47 rifle. After evaluating the effectiveness of the M16, the Soviets, too, have finally adopted a similar — 5.45mm — service rifle and squad automatic weapon.)

Another major contributor to the negative view has been the Army's inadequate marksmanship training program, which for several years has consisted of going through a quick zeroing procedure on a 25-meter range followed by field firing at pop-up targets for practice and skill acquisition. Pop-up targets provide only gross hit or miss information, not the precise bullet location feedback that is necessary for the development of good marksmanship skills. In effect, we have expected our soldiers to acquire shooting skills without supervision and without any feedback on their actual performance. It is true that many of our soldiers can't shoot, but it is unfair to blame this condition on the rifle itself, and this statement is supported by the superior performance of the Australian soldiers using the M16 rifle.

Maintenance training has also been neglected. I am convinced that any M16 can shoot without malfunctions, but the Army has not yet spelled out and tested simple procedures that are appropriate for its soldiers to use. The Army's rifle maintenance training is too broad, and it does not focus on the few critical items that will keep the rifle shooting in combat.

A preliminary list of critical items that should be included in any maintenance training program would be the identification and elimination of bad magazines, the discontinued use of excessive lubricants, more attention to the chamber and bolt carrier group, and adequate protection of the weapon from the elements.

During the recent BRIGHT STAR exercise in Egypt, there were complaints that the M16 rifles malfunctioned even though they were cleaned three times a day. I believe that these malfunctions were caused by too much cleaning rather than too little. If the weapons had been properly maintained before the exercise and then protected with dust and muzzle covers, they probably would have functioned for the entire exercise without any kind of maintenance.

## ARGUMENTS

There are other things as well that may have contributed to the negative perception of the M16 rifle. Most of these are honest differences of opinion. Here are some of them:

- A number of military people believe that while the M16 was adequate for use in the Vietnam environment, the M14 rifle is more suitable for the European or desert environments. It is true that a heavy bullet (the M14's 150-grain) is more accurate at long range, and it has a greater armor piercing potential than a light bullet (the M16's 55-grain). But does this alone justify criticizing the M16? The current requirement for the service rifle is to engage personnel targets at ranges extending out to 300 meters. The real discussion, therefore, should focus on a

Threat analysis to determine the range and nature of expected combat targets before rifle requirements are addressed. Also, if our soldiers are going to be expected to engage targets effectively at long ranges with rifle fire, a greatly expanded marksmanship training program will be needed.

- The Army Marksmanship Unit does not use the M16 in national competition even though, historically, it has always used the standard service rifle. The AMU does not use the M16 rifle for two reasons: the 5.56mm bullet does not perform as well as a 7.62mm bullet at the long ranges used in competition, and the M16 is extremely difficult to accurize. Quite inadvertently, therefore, out-of-the-rack M16s are often compared with specially accurized M14s. This contributes to the fact that so many people in the marksmanship community have a low opinion of the M16.

- Some people feel that the M16's full automatic capability encourages a hose-down-the-area marksmanship philosophy that detracts from good marksmanship training.

- The sights on the M16 are not considered as good as the sights on the M14. Many soldiers feel the sights are confusing to use and hard to adjust, and that it is very difficult to record the zero of their rifle. (To attenuate this problem, a new zero target has been developed to simplify zeroing.)

## PROBLEMS

There are some problems with the M16. Its light weight makes it susceptible to external stresses, and the barrel is sensitive to sling tension, a bipod, or any heavy pressure applied forward of the receiver. But the new training program recognizes these conditions. Also, additional caution is required during bayonet training. But these are tradeoffs for its light weight, which is a most desirable feature.

Another problem is that a combination of factors prevents the M16 from having a "standard" zero. The precise mating of the steel barrel to the alloy upper receiver is critical. Any misalignment during the rifle's assembly will cause the zero windage setting to be off center. The movable front sight and allowable tolerance in the carrying handle also combine to prevent a uniform setting for elevation. This does not, however, affect the shooting quality of an individual rifle.

The M16's trigger mechanism could be improved. Worn triggers tend to creep and do not have a crisp break. And when the firing mechanism is worn, during semi-automatic fire a slow release of the trigger will sometimes cause a second round to fire.

## POSITIVE ASPECTS

But the M16 has received more than its share of negative emphasis. Here are several of its positive aspects as



well as several advantages it has over the M14:

- The M16 is lighter and easier to handle.
- The M16's ammunition is lighter, allowing twice as much ammunition to be carried within the same weight limitations.
- The M16 makes less noise and has less recoil.
- The M16 is an easier rifle to use in training all soldiers to fire (every troop test has proved the superiority of the M16 at ranges to 300 meters).
- The M16 bullet has a tendency to yaw and tumble in flesh, producing tremendous killing power.
- The M16 gives both a psychological and a tactical advantage to its user, for he can deliver a high volume of automatic fire if it is ever needed.
- The M16 has adequate knockdown power at all ranges, having more at 300 meters than a caliber .45 pistol has at its muzzle.
- The M16 can kill personnel targets well beyond 300 meters. For example, it can penetrate a steel helmet at ranges out to 500 meters.
- The M16's relatively flat trajectory round allows teaching soldiers to use one aiming point to obtain target hits at all ranges out to 300 meters.
- The M16's pistol grip and light weight allow it to be fired with one hand during close-in fighting and when fighting in built-up areas.
- The M16's charging handle offers versatility, making it easy for right- or left-handed firers to operate the weapon.
- The M16's construction is simple, which permits complete field stripping in a few seconds.

## CONFIDENCE

The last thing I want to do is to instill confidence in a weapon system if that confidence is not warranted, but I believe the M16 rifle is worthy of our confidence.

The fact is, if we go to war in the next several years, the American soldier will go into battle with the M16 rifle. His combat performance will be vastly improved if he believes his weapon will fire every time he pulls its trigger and that he can hit every personnel-sized target out to a range of 300 meters.

I am also convinced that if we replaced the M16 with any rifle in the world today it would have almost no effect on our soldiers' shooting performance. If we want to improve their marksmanship ability, it must come through improved training programs, improved training ranges, improved instructor training, and through the

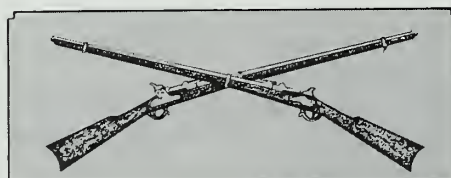
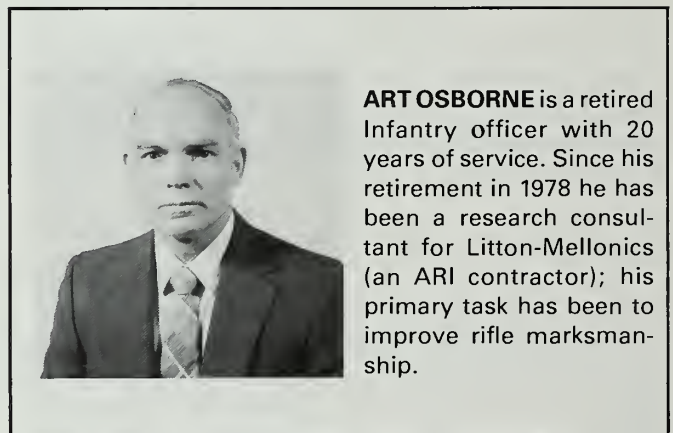
development of some positive incentives to encourage good marksmanship training.

Although I believe the current M16 rifle is an adequate weapon, I am not satisfied that it is necessarily the best rifle the American soldier could ever have. But while we continue to search for a better one and attempt to resolve controversial doctrinal issues concerning the rifleman's combat tasks, the rifle that is now in the hands of our soldiers deserves our support.

The Marine Corps is now evaluating an M16 rifle with six modifications. It has a handguard of different material and design, a stock made of more durable material, a dust cover of different material, a new barrel locking nut, a different sight, and a slightly heavier barrel with a 1:7 twist designed to fire a new 5.56mm bullet. (This 62-grain bullet has been selected for use in the squad automatic weapon [SAW]. The ballistic characteristics of this new round are quite close to those of the standard 7.62mm round, which means that the M16's long range accuracy and penetration ability could be improved.)

When all the evidence is carefully considered, the M16 rifle has no serious shortcomings. It is a lightweight, reliable weapon, capable of delivering either extremely accurate semi-automatic fire or a great volume of automatic fire. When cost, performance, reliability, versatility, and trainability are considered, the M16 is one of the best military rifles in the world today. While I may not be able to prove that statement to everyone's satisfaction, I know of no collection of valid data that makes it false.

Stop listening to war stories and hearsay. Take an M16 rifle out to the range. Get a good zero. Put a steady front sight post on any target out to 300 meters and squeeze the trigger. I think you'll be impressed. And then hold that rifle up to your troops and tell them it's a *damn* good weapon. It is.





# *The Desert:*

ITS EFFECT ON OPERATIONS





*EDITOR'S NOTE: This is the second in a series of three articles on desert operations. Much of the material for the series comes from a British pamphlet (Part 3, Desert, June 1979, Volume V, Operational Techniques Under Special Conditions), published by the Ministry of De-*

*fence and used by permission. The first article in the series, which was published in our July-August 1981 issue, dealt with the effects of the desert on the soldiers; the final article will deal with logistics and maintenance.*

Although the basic tactical principles do not change when a unit must operate in the desert, they must be modified because of the environment and its effects on personnel and equipment. Some of the characteristics of the desert that influence operations are the terrain, the excellent observation and fields of fire, the lack of concealment, and the lack of both natural and man-made combat service support.

The main objective of a unit operating in the desert is still to destroy the enemy. A unit seldom has the mission of seizing and holding specific terrain, simply because there are not many key terrain features in the desert. When it does have such a mission, it is chiefly to seize routes, water sources, or communication sites, or to control positions that permit better observation.

The key to success in the desert is the tactical mobility of armored forces, possibly supported by airmobile forces. Most desert conditions offer an opportunity for mobile operations, and the speed of action and reaction is most important. The need to concentrate forces at the points of main effort also requires forces to have good mobility.

Trafficability in the desert is usually good, but vehicles can become bogged down in soft sand, have their suspensions or transmissions damaged by boulders in rocky areas, or have their tires punctured in almost any desert area. Certain types of terrain, particularly salt marshes and sand dunes, restrict operations and reduce surface movement. On the salt marshes, vehicles bog down if they break through the surface crust into the mud beneath. Wadis (canyons) and escarpments, which normally have few crossing places, are also definite terrain obstacles, and after a heavy rain, wadi beds are usually completely impassable.

Drivers must be adequately trained to cope with the varying conditions they will encounter in the desert. The routine of moving and the actions required of drivers and crewmen are most important, and everyone must master them.

Vehicles should not follow in the tracks of those ahead because they present better targets that way, and because they raise more dust and probably obscure the vision of the commanders and drivers. It is often better to follow along the edges of the tracks rather than in them, except when the presence of mines is suspected.

Daylight movement should be kept to a minimum; if movement must take place, the vehicles should be widely spaced, and each one should have an air guard. They should be dispersed to keep from presenting a worthwhile target for air attack, particularly during mobile operations or when armored formations are halted.

Camouflage must be used effectively. Stationary targets that are well camouflaged are difficult to see from the air. If a vehicle is detected and attacked, it can achieve a measure of protection by driving fast toward the attacking aircraft, by zigzagging, or by pulling off at 90 degrees to throw off the pilot's aim.

When a unit is halted, it must maintain all round surveillance and establish patrols and observation. Although its perimeter may be only lightly defended, a reaction force must be readily available to move to any sector that may come under attack. Additional sentries and warning devices should be used at night and in conditions of limited visibility.

Patrolling is essential in the desert to guard against surprises. Patrols can usually operate at considerable distances to the front and the flanks to supplement the patrol activities of the close-in reconnaissance troops.

## NAVIGATION

Navigation in the desert is difficult for several reasons. Because there was little need in the past for maps of desert areas, the accuracy of the ones that were produced has varied. Today, though, with aerial survey techniques, good accurate maps can be produced. Even these will show few features, and reading them can be difficult because of the limited number of distinguishable landmarks.

But maps of desert areas do show patterns of ground structure, the directions in which dunes and wadis lie, and their general range. Names shown on maps can also provide some information on what may be an otherwise apparently indistinguishable feature, although in these cases some knowledge of the local terminology is usually needed.

Aerial photographs can be taken for up-to-date information and details of positions and can be used to complement the maps. Abandoned vehicles and other signs of military activity may remain for some time, and these can also assist map reading.

Normal map reading techniques that call for using terrain features may not be possible in certain types of desert. In fact, it may become necessary to appoint a specific person in each company team and battalion task force, preferably a soldier who is qualified in celestial navigation, to become the unit's primary navigator.

A reliable method of navigation is dead reckoning using a sun compass. It is also the simplest, but its accuracy depends on the proper setting of the compass and on the accuracy of time keeping and a vehicle's odometer.

With the lensatic compass, individual compass error and local deviation must be known. The compass is unreliable near quantities of metal and can also be affected by underground mineral deposits. It is almost impossible to use with accuracy on a vehicle.

An efficient gun azimuth stabilizer set up on fairly flat ground is also useful for maintaining direction.

## OBSERVATION AND FIELDS OF FIRE

The generally open terrain of the desert and the clear visibility offer long range observation. During the day, movement can be detected either from raised dust or from light shining on windshields at ranges beyond 5 kilometers and sometimes as far as 20 kilometers.

Whenever possible, observation posts should be as high above the desert floor as possible, for even the smallest elevation reduces the effects of mirage and heat haze. Although glaring light sometimes improves visibility, it can also cause mirages and heat shimmer. Observation, therefore, is better at dawn and dusk when the air is cooler.

Light has a considerable influence on observation, and it is easier to look away from the sun. During the morning and evening, for instance, an observer with the sun behind him can see objects standing up plainly without shadow, while an observer looking in the other direction may have difficulty in identifying those same objects.

During the hottest part of the day, heat haze can reduce visibility to such an extent that a man is obscured or his figure so distorted that he cannot be seen at 200 meters. This haze can be used to cover reconnaissance and movement. Because radars are effective through haze, they may be the only way of achieving surveillance, although their active nature may also lead to their own detection.

Radars are not effective, though, in sandstorms. This means that a sandstorm can be used to cover movement, provided routes can be followed and vehicle spacing maintained. But there is every possibility of becoming lost, and the driving can be hazardous as well.

Thermal imagery devices are more effective at night than during the day because they rely on the difference between the temperature of the target and that of its background. The reason for this is that during the day an object such as an armored vehicle and its background may both be so hot that there is not enough contrast between them to permit detection. At night, if the sky is clear and there is enough light from the stars or the moon, these devices can see out to considerable distances.

Fixing the positions of either observation posts or targets is always difficult because of the lack of natural features. This problem can also lead to difficulties in determining the direction of fire and may require the use of extra ammunition before a target can be engaged effectively. Laser target markers can be particularly useful for obtaining ranges and identifying targets, while cannon-launched guided projectiles may be particularly effective

against marked targets.

The ability to raise sensors to extend their field of view over flat terrain is also important, because if the enemy has a good air defense capability, aerial observation may not be possible except from behind friendly lines.

In mobile operations, units may meet at such distances that they will find it difficult to distinguish friend from foe. To avoid engaging friendly troops, units should develop a system of recognition based on their call signs.

## WEAPONS

Because of the open and normally flat desert terrain, targets can be detected early and engaged at long ranges. While firing accurately and first is most important, opening fire beyond the effective range of a weapon only leads to ineffective fire, the loss of surprise, and an excessive consumption of ammunition.

Where there has been ample time to prepare positions, markers may be put out to indicate ranges if the natural features do not suffice. In all positions, a range card should be required to improve the chances of an effective engagement.

The choice of positions and the siting of weapons are particularly important. Weapons must be sited for mutual support, and if the desert is open and the trafficability good, care must be taken to ensure that a position cannot be rushed. Defilade positions from which enfilade fire can be brought to bear should be developed.

When a direct fire weapon, particularly a recoilless one, is fired, it raises a cloud around it, which gives away the weapon's position. In addition, because of the obscuration caused by the dust, it may be difficult to observe the shots from direct fire weapons. In this situation, either observers must be stationed to the side to report on the effectiveness of the engagement or control must be exercised from another weapon in an adjacent position. If possible the ground around a weapon should be damped down or treated with old oil or chemicals to reduce the dust cloud, although this action, too, may give away the weapon's position. Needless to say, it is important to have secondary fire positions to which tanks and weapons can move.

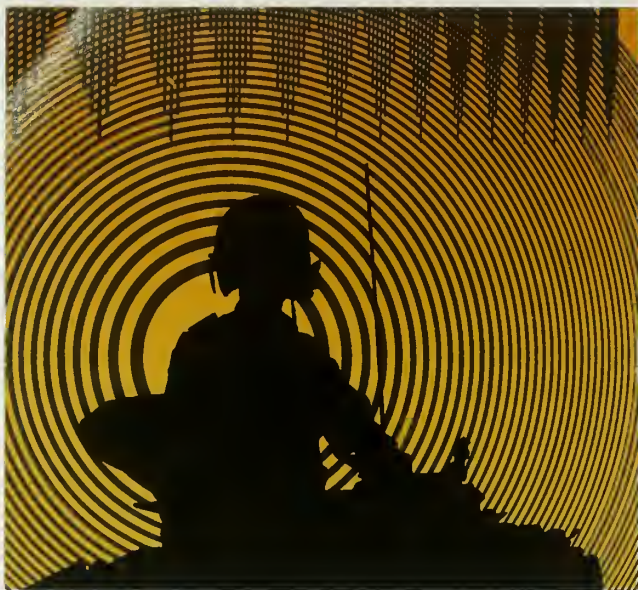
With artillery and mortar fires, observers may have difficulty in correcting their fire as the dust cloud raised by a bursting round can obscure their target. A bracket of the target may also be difficult to achieve, and considerable ammunition may be expended in adjusting fires onto the target. Colored smoke rounds can be used to ease the problems of identification.

## COMMAND AND CONTROL

Command and control present a special challenge in the desert. A lot of information must be collated, evaluated, and disseminated quickly because of the extent and speed of events in a mobile battle.



Good leadership is particularly important. Commanders should be well forward so they can assess the situation personally and influence events. In the process, though, there is a real danger that commanders will become exhausted unless they establish a proper routine of rest and sleep. The helicopter gives them the mobility they need to meet regularly with subordinate commanders and, with good communications, they can exercise control from their tactical headquarters.



Radio is the primary means of controlling mobile operations within armored formations. Over flat desert terrain, VHF (FM) communications are usually good, except during the hottest part of the day when their operating ranges may be reduced by as much as 50 percent. Under these conditions, or when mountainous terrain severely screens VHF stations, radio rebroadcast becomes necessary.

In addition, the range of HF sets is reduced because of the poor propagation of HF ground waves over dry sandy soil and also because of the high level of interference from static electricity, particularly at night. The overheating of radios also may diminish their performance.

There are "dead spots" in some parts of the desert, usually because of certain sub-surface materials. These places are unacceptable for command posts. And communications should always be established with all subordinate units from a newly selected position before the headquarters moves from the old position.

Relying on radio communication and the wide dispersion of units provides the enemy with considerable opportunity for communication intercept and analysis and for direction finding. This threat is increased by any extensive use of radio rebroadcast stations and by the lack of natural screening in flat terrain. Particular attention, therefore, must be paid to communication security. A measure of protection can be gained from using radio procedures correctly, by operating on radio silence as part of a coordinated plan involving other active sys-

tems, and by using wire whenever possible. Conversely, signal intelligence can provide a major source of information on enemy activities and intentions.

## OFFENSE

The principles of offensive tactics remain the same in the desert, but more emphasis is placed on reconnaissance on a wide front and on speed of movement. Often the opposition is bypassed until an objective such as a base, defile, or water source is reached that the enemy is prepared to defend. In carrying out an advance care must be taken that units are not cut off from their logistic support.

Local air superiority is necessary to carry out an advance by day. Air reconnaissance will assist the advance and should give early information on any enemy forces that can move against the advance and its flanks.

Medium reconnaissance squadrons should be deployed well ahead of the main body to report on trafficability and on the enemy. The main body must be dispersed as much as possible consistent with the air threat, the need to retain control, and the best use of mobility. The main body must be able to react quickly to contact reports and must be able to change direction to bypass or attack enemy opposition. Armored units should be kept together so that they can be used as a concentrated force.

If the advance is carried out at night and the enemy does not have a good surveillance capability, there is a greater chance of achieving surprise. Dust clouds that are raised by the moving vehicles will not be seen and the force will be less vulnerable to air reconnaissance and air attack, but vehicle noises can still reveal movement.

When both sides are using mobile tactics, it is often easy to secure ground, but the aim must be to attack and destroy the enemy. This may take the form of attacking him and cutting him off from his supplies, particularly of gasoline and water, thereby immobilizing him and forcing him either to retreat or to surrender.

Surprise is the essence of a successful desert attack. The main difficulty is to overcome a long and open approach to the enemy position; attacks must therefore be launched quickly and, if possible, must come from an unexpected direction.

Armor units are likely to be used in mass with attacks in depth on narrow frontages. The task of these units is to outflank and penetrate the enemy's defenses and destroy him. In the bigger tank battles obscuration from dust and smoke may limit visibility to less than 100 meters. A quick response to sighting and rapid engagement at short ranges then becomes important.

If armored forces are under fire from guided weapons at long ranges, then artillery fire and smoke can be called for to disrupt the weapon controller's aim. If it is possible to identify the position from which a guided weapon is being fired, the use of high-explosive direct fire may be quicker and more effective than calling for and correcting artillery fire.

## EXERCISE BRIGHT STAR

The following are some more comments taken from the after-action report of Exercise Bright Star, conducted in Egypt by units of the 101st Airborne Division (Air Assault).

### On weapons:

- Range estimation was extremely difficult because of the flat terrain and the sun glare. One method ground observers can use as a guide for range estimation is that the standard man is 5 feet 9 inches tall; at one kilometer that man will appear to be about 30 inches tall; at two kilometers, he will appear to be about 16 inches tall.
- We definitely need a rifle with an effective range of 800 meters. The AK47s carried by the Egyptian troops were the dirtiest, rustiest weapons, but they worked extremely well compared to the M16s. One M16 blew up because of sand. Investigation revealed that it had been maintained as well as all the other rifles.
- The M60 machinegun, if cleaned and lubricated, would start jamming after 20 rounds. If cleaned dry, it would overheat.
- Weapons have to be cleaned at least three times a day. We need a rifle with fewer moving parts.
- Because our TOW gunners could see great distances with their 13-power optical sights, they wanted to engage targets that were beyond 3,000 meters. A laser range finder should be provided for each weapon.

### On visibility:

- Visibility is affected by the position of the sun and by haze on the horizon. It is impossible to see armored vehicles on the horizon at a distance of 3,200 meters if the sun is high in the sky behind them.
- Desert haze produces the same blinding or masking effect when the sun is behind your location as headlights do on high beams in a fog.

### On navigation:

- In bright moonlight, the desert floor washed out. The bright light reflected off the desert floor created glare and made it difficult to see prominent terrain features or to determine height above the ground. When the light decreased (cloud cover or reduced moon), the desert floor could be seen better, but it was still impossible to determine height above ground. A radar altimeter was the only way to determine that height. Doppler was required for night navigation.
- Navigation by day was easier than by night; even small hills

(50 to 60 feet) stood out prominently at 10 to 15 kilometers.

- The maps we had were fairly accurate, even those that were as old as 1960.

### On cover, concealment, and communication:

- Radio transmissions did not carry as far as expected, partly because of the effect the desert has on FM radio waves and partly because of sand in everything. The RC-292 antennas and long whips for the PRC-77 should be used to gain distance. Connections must be cleaned frequently.
  - Nighttime offered the best concealment for moving, but it also offered excellent visibility.
  - Overhead cover is hard to get. There is no vegetation and because the sand is loose, tunneling is impossible.
  - Securing camouflage nets in soft sand or hard rock is difficult. One solution is to find large rocks to replace the stakes or to carry sandbags to use as ballast.
  - The camouflage colors on the vehicles were Sand, Field Drab, and Black. Field Drab showed up darker than the terrain. We should consider substituting Earth Yellow for Field Drab and Field Drab for Black in areas that have little or no vegetation.
  - Natural concealment was virtually nonexistent. Desert camouflage uniforms are needed.
  - Green nylon sandbags were totally inadequate. The reflected sunlight off them made them easily detected.
- ### On operations:
- Motorcycles (dirt bikes) were used for reconnaissance and antiarmor ambush. The drivers strapped Dragons on their backs and went to concealed positions on the avenue of approach.
  - Trafficability was no problem. Areas of deep sand could be detected at some distance and bypassed. Rock outcroppings were isolated and easy to bypass.
  - When engaged in conducting delaying operations from subsequent battle positions, infantry troops were best used to prepare subsequent positions.
  - At night, troops were confused about vehicle distances: based on vehicle noise, for instance, opposing force vehicles seemed to be extremely close when they were as much as 3 or 4 kilometers away.

Infantry units will have the tasks of taking over and holding key terrain along with the armor units and of maintaining or restoring the mobility of armor units that may be held up by antiarmor defenses. Battle procedures must be good if operations are to be effective and carried out quickly.

## DEFENSE

Because the desert offers so little concealment, defensive positions must be prepared. But hard ground may not be suitable for digging and explosives may have to be used to break it up. In soft sand it is easy to dig a slit trench, but sandbags and revetting material is required to shore up the sides. Considerable amounts of defense materiel are needed to prepare effective positions.

Vehicles should be dug in to provide them with additional protection by decreasing their silhouettes. This

requires considerable effort, though, and is not usually undertaken unless the ground is suitable, engineer support is available, or a position is likely to be occupied for some time.

Deeply dug and well prepared strong points surrounded by a minefield and having underground accommodation can be used in the desert. Although these strong points may be neutralized by air or artillery fire and bypassed, eventually they will have to be assaulted. If they have been carefully sited and are well defended, they can be quite effective.

## COVER AND CONCEALMENT

Although there is little natural cover in the desert, aside from ridges, escarpments, depressions, and folds in the ground, these natural features can provide concealment from ground observation. Cover from air observa-



tion is difficult, particularly in the mornings and evenings when the visibility is good.

**32** The ground must be used properly to obtain cover. Infantry, tanks, and personnel carriers should be dug in in an irregular shape to make the resulting position look like a natural depression. If the ground is rocky and positions cannot be dug, stone breastworks should be constructed to blend in with the natural surroundings.

Natural cover is difficult to find, so particular attention must be paid to camouflage and deception measures. The desert camouflage net, for example, should match the color and texture of the ground, and it must provide complete coverage because there will be no background into which a vehicle can be absorbed.

In camouflaging vehicles, attention must be paid also to shape, shine, and shadow. Certain vehicles, such as water and fuel tankers, for example, which are easily identified by their shapes, may become prime targets for attack.

The bright sunlight causes reflection from untreated surfaces such as windshields, optical instruments, bayonets, eating utensils, and map boards. It helps if vehicle windshields are covered with cloth that is thin enough to see through, and if optics are kept shaded.

Because there is little vegetation to cast shadows, all shadows attract attention on the desert. Vehicle shadows should be broken up by using camouflage nets at all times, by digging in to avoid presenting a shadow and, if possible, by moving to get the correct angle relative to the sun. The siting and selection of positions are particularly important.

Antenna "farms" at command posts should be avoided by remoting radios in different directions from the tactical operations center, and special attention must be paid to light and noise discipline. At night, when conditions are still, light can be seen and noise heard for many miles. Night vision devices can be used to pick up light sources at considerable distances; lights inside vehicles, therefore, must be used so that the light does not show outside.

To avoid detection by passive thermal detectors, equipment must be carefully sited, particularly at night when engines are run to generate heat.

During the day, the natural heat haze can provide concealment, particularly during the hotter parts of the afternoon. This effect can be used to carry out activities with less chance of detection. Dust raised by the wind, or deliberately raised by moving vehicles, can also be used to conceal activities, but it may not hide them from radar.

Smoke can be used to provide concealment, but large amounts may be needed because the smoke will rise and disperse rapidly if there is any wind during the hotter parts of the day.

The general difficulty with camouflage and concealment in the desert increases the need for dispersion as a

means of achieving protection. If a unit is fully mobile and has good communications it should be able to concentrate quickly for action and then disperse to gain a measure of protection from air and artillery attack. The vast expanses of desert offer great security if they are used properly. The vulnerability of a unit that results from its being either too concentrated or too dispersed should be continually assessed against the likely enemy threat.

## OBSTACLES

The lack of natural obstacles in the desert leads to a need to create a series of obstacles around which armored forces can maneuver. Minefields and antitank obstacles are required to canalize and delay the enemy's movement, to disrupt his attack, to prevent positions from being rushed, to cause casualties, and to force the enemy to use his resources to breach the obstacles.

The desert lends itself to the use of mines, but effective minefields require that considerable engineer resources and logistic tonnages be devoted to the task. In response to enemy mining, and to open gaps in friendly minefields, a considerable mine breaching effort is also required.

Burying mines in sandy soil is relatively easy, but in areas that are rocky or that have a limited amount of topsoil, it is difficult to dig in mines. In many circumstances, windblown sand may cover or uncover minefields, and mines laid in wadis may be swept away during rainstorms. If mines are laid on the surface, they may be detected more readily and either avoided or lifted; in these circumstances, antipersonnel mines and anti-lifting devices can deter mine-clearing by hand.

Minefields must be clearly marked if friendly troops are to be kept from blundering into them.

Antitank ditches can be dug in the desert, but it takes considerable time and effort to prepare and maintain them.

Because of these modifications to normal operations, all soldiers, and especially their leaders, must receive some training in desert warfare before they are sent to fight in a desert environment. In addition to the acclimatization training discussed in Part 1 of this series, this training should include survival, evasion and escape, camouflage and concealment, desert navigation, terrain appreciation, and scouting and patrolling. In addition, the units should learn how to cope with desert operations while wearing their NBC protective clothing, both during the day and at night.

If the soldiers in a unit know what to expect when they are sent to a desert region to fight, and if they have received some training in the special problems they will face there, any unit should be able to fight effectively in the desert and win.

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# EMPLOYING THE IFV

CAPTAIN ROBERT P. SEDAR





The M2 Infantry Fighting Vehicle (IFV) is the most advanced weapon system of its type in the world, and it gives the United States infantryman the kind of combat capability he will need to survive and win. It gives him unprecedented firepower, armor protection, and battlefield mobility, but still leaves him his traditional ability to fight on foot.

But the infantryman should not regard the vehicle as being invulnerable. While it does provide him excellent protection against small arms fire and shell fragments, it does not protect him against tank or antitank guns, missiles, or rockets. This means that an infantry leader must carefully analyze every situation and weigh the advantages and disadvantages of mounted and dismounted combat.

Although the increased capability of the IFV often will make mounted combat the preferred method, dismounted infantrymen will still be critically important. Thus, the vehicle and the dismounted infantrymen together become the center of combat operations. Both offensive and defensive (either mounted or dismounted) tactics must be built around the IFV. The infantryman must understand that the squad is a part of the IFV and the IFV is a part of the squad. Together the two make up one system.

The IFV carries a total of nine men. The track commander (TC) and the gunner ride in the turret; the driver rides on the left front station; and the remaining six men ride in seats in the troop compartment. Each man can see the battlefield through at least one vision block. Both the track commander and the gunner can operate all of the weapons in the turret, and each of the six men in the troop compartment can operate a 5.56mm firing port weapon.

The IFV has acceleration and speed far superior to those of the armored personnel carrier it replaces. It has a maximum land speed of 41 miles per hour and a cruising range of 300 miles. Its mobility and agility result from a combination of engine power, power train efficiency, and suspension system.

It has a reliable turbocharged diesel engine that provides rapid acceleration and sustained high speeds; a responsive hydromechanical transmission that permits its driver to easily maneuver the vehicle, even in difficult terrain; and a suspension system that has 14 inches of vertical wheel travel plus high performance shock absorbers that allow the IFV to move rapidly over the roughest terrain at high speeds with minimum shock and stress to the squad and the vehicle.

The IFV has outstanding armor protection for its weight (48,500 pounds when combat loaded) because of its surface slope and its unique laminate system made of the latest armor materials.

Although its armor protection cannot compare to a tank's, the IFV can withstand ballistic attack on all sides from projectiles up to 14.5mm in size. Its top can withstand fragments from near air bursts of artillery rounds up to 152mm. The IFV's armor cannot defeat antiarmor weapons, but through the proper use of terrain and the

proper use of the IFV's mobility and firepower, its vulnerability to antiarmor systems can be considerably decreased.

The vehicle's main armament systems are contained in its turret. These are a 25mm automatic, externally powered cannon; a two-tube TOW antitank missile launcher; and a 7.62mm machinegun, which is coaxially mounted with the 25mm cannon. The all-electric, fully stabilized turret drive permits the cannon and the machinegun to be fired accurately regardless of the terrain.

The M242 25mm cannon fires both armor-piercing and high-explosive rounds with extreme accuracy. Its armor-piercing, discarding sabot (APDS) round can penetrate the Soviet BMP and similar lightly armored vehicles at ranges up to 3,000 meters, while its high-explosive incendiary tracer (HEIT) round is excellent for suppressing antitank guided missiles and crew-served weapons.

## COMMUNICATIONS

The IFV's communication systems are also outstanding. Each of the IFVs in the mechanized infantry platoon has an AN/VRC-160 radio. In addition, the platoon leader's and the platoon sergeant's IFVs have AN/VRC-46 radios. Each IFV also has an internal communication system.

For dismounted operations, both the platoon leader and the platoon sergeant can change their AN/VRC-160 radios to an AN/PRC-77 configuration. For communications within the unit when the platoon is dismounted, the platoon leader, the platoon sergeant, and each of the three squads have either AN/PRC-88 radios or AN/PRC-68 small unit transceivers (SUT).

With only a little preparation, the IFV can ford up to three and one-half feet of water. When the vehicle's water barrier is erected, and with some additional preparation, the IFV can swim water obstacles at a maximum speed of 4.5 miles per hour.

The IFV also has two on-board smoke systems. One is a smoke screen generator that creates a dense cloud of smoke by introducing diesel fuel into the engine's exhaust system. The other consists of eight smoke grenade launchers mounted on the front of the turret, four on each side. These eight launchers are fired at the same time and produce a dense cloud of smoke around the vehicle almost instantly. The launchers must be reloaded from the outside before they can be fired again.

The IFV has the most sophisticated limited visibility observation devices of any vehicle of its type in the world. The track commander and the gunner have access to an integrated (day and night) sight unit. While the day sight has normal optics, the night sight uses thermal imagery technology that enables the gunner to see through all visibility conditions, including smoke. With it, he can also see through light foliage and camouflage.

The driver has the AN/VVS-2 night vision driver's viewer, an image intensification device that allows the driver to see clearly to his front, even on the darkest

night. With it, he can operate on the roughest terrain and drive in night road marches at speeds of up to 30 miles per hour. During periods of darkness, he can also use the viewer to help the gunner and the track commander sense rounds fired to the front from the turret weapons.

The track commander also has the AN/PVS-5 night vision goggles, which he can use to control the vehicle's movement, to read maps, and to check vehicle maintenance.

A mechanized infantry squad has two types of night vision devices for dismounted operations: two AN/PVS-4 night sights (Starlight scopes) for individual weapons and one AN/TAS-5 thermal night tracker for the Dragon medium antitank weapon system.

## THE PLATOON

The mechanized infantry platoon equipped with the IFV is organized with a platoon headquarters and three rifle squads. It has four vehicles. The platoon leader and his headquarters are mounted in one IFV and the squads are mounted in the other three.

A typical mechanized infantry platoon headquarters consists of a platoon leader, the platoon leader's radio-telephone operator, platoon sergeant, assistant platoon sergeant, driver, gunner, medical aid man, forward observer, and the forward observer's radio-telephone operator. Although the platoon sergeant is part of the platoon headquarters, he usually rides in the second squad's vehicle. The platoon sergeant switches vehicles with a rifleman from the second squad when the squad is at full strength.

The IFV is not simply an improved armored personnel carrier. It is truly a fighting vehicle, and while the fundamentals of our current tactical doctrine remain essentially unchanged, they must be modified to take advantage of all of the IFV's capabilities.

At full strength, an IFV squad has nine soldiers: squad leader, gunner, assistant squad leader, driver, antiarmor specialist, M60 gunner, two automatic riflemen, and a rifleman/sniper. For combat operations, the squad should be organized into two teams — a fighting vehicle team and a close combat team. The fighting vehicle team should include the soldiers who will be employed on or close to the IFV; the close combat team, on the other hand, should include those who will operate away from the IFV. There is no vehicle crew for the IFV in the conventional sense because there is no fixed organization for either the fighting vehicle team or the close combat team. The operation and maintenance of the IFV is done by the entire squad.

Normally, in combat, a fighting vehicle team will consist of a track commander (TC), a gunner, and a driver. The TC for a squad vehicle, therefore, will be either the squad leader or the assistant squad leader. The platoon leader might direct one or the other to go with the close combat team depending on which team he feels will be more involved in the fighting. If a squad is to be dis-

mounted and if the IFV cannot be used to support it fully, the platoon leader might choose to leave only a driver and a gunner in the squad's vehicle.

A close combat team will contain those squad members who are not a part of the vehicle team. Its organization should be specified by the platoon leader, and it should be based on the strength of the squad, the mission, the terrain, and the enemy, and on guidance from the company commander.

During fast moving mounted operations, of course, the platoon should be organized as a single force.

## CONTROL

The platoon is the basic maneuver element for combat operations. It can fight as part of a pure mechanized infantry company or as part of a company team that may be organized with both tank and mechanized infantry platoons. When organized as part of a company team, the mechanized infantry platoon can be placed under the control of either a tank or a mechanized infantry company headquarters. Regardless of the command headquarters, the mechanized infantry platoon should move and fight as a unit. It should not be broken down further except in rare situations when the company or company team commander may temporarily separate the fighting vehicle elements from the close combat elements and take direct control of the former.

When a platoon remains mounted, it should fight as a single force under the control of its platoon leader. At times, the platoon leader might choose to divide the platoon into two sections of two IFVs each. In this case, the platoon sergeant should control one section while the platoon leader controls the other. Each squad leader, as a TC, should react to the directions of his section leader. But even in such a situation, the platoon leader should retain overall control of the entire platoon.

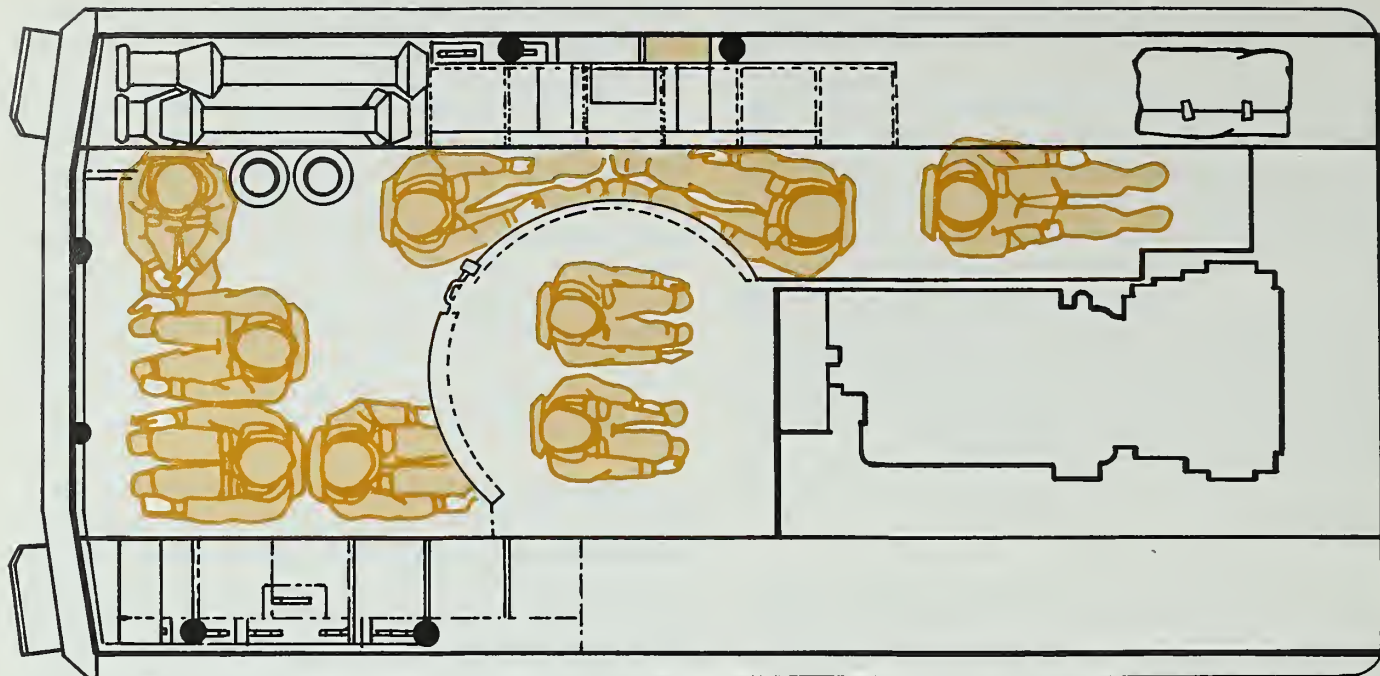
When it becomes necessary, the platoon's close combat teams can fight on foot. If the close combat teams and the fighting vehicle teams are to be separated, each element should have a designated leader. The platoon leader should still retain overall control of both elements except in those cases when his company commander might take control of the fighting vehicle elements. Normally, because of control problems, the platoon should not be organized into more than two separate elements.

## VEHICLE ELEMENT FORMATIONS

The platoon will usually use one of four basic vehicle formations: column, line, echelon, and wedge. These formations, modified as necessary, will permit the platoon to react appropriately in most situations and under most conditions.

These formations should be considered aids to command and control, not straightjackets, and the specific formation should be determined primarily by the mis-





sion, the enemy situation, and the terrain. But the vehicles in a realistic column formation, for example, should not look like ducks in a row; they should be staggered and the distances between them should vary according to the terrain they have to cross. Each IFV should guard and search a different sector to provide all around security. The platoon leader should direct the platoon by using arm-and-hand or flag signals. He should use the radio only as a back-up means of communication.

These formations should be integrated into the standard movement techniques that are now being used: traveling (when enemy contact is not expected), traveling overwatch (when enemy contact is possible), and bounding overwatch (when enemy contact is expected).

An additional consideration for the leader of a fighting vehicle element that is mounted is a "weapons ready posture." The leader should designate the weapon or the type of ammunition each IFV will have pre-selected to insure the platoon can immediately respond to any sudden threat. The weapons posture will vary with the situation.

When tank and mechanized infantry units have been organized into company teams and have been committed to a mounted attack, the tanks will normally lead because of their greater armor protection and their powerful main guns. This is the preferred method whenever the terrain and situation permit.

The company team can use either the line or the column formation. The line formation permits the team to bring its firepower to bear to the front and allows the IFVs, closely following the tanks, to provide suppressive fires both to the front and to the flanks. Each IFV should follow a specific tank; they should be close enough to protect the tanks yet far enough behind them to avoid any enemy fire that might be directed at the tanks. The pri-

mary mission of the IFVs is to observe the sectors between and to the flanks of the tanks and to suppress or destroy any enemy antiarmor weapons with their 25mm cannon or 7.62mm machineguns. The IFV gunners, of course, must be careful *not* to fire their 25mm cannon into the rear of a friendly tank.

The column formation allows the IFVs to provide greater flank protection, but it reduces the amount of fire that the team can deliver to the front. This formation can be used to protect one or both flanks in more restrictive terrain, and it does facilitate movement into the line formation for the final assault.

In some situations, the IFVs may support the tanks by following them by bounds, because with both the TOW and the 25mm cannon the IFV can provide effective covering fire at long ranges. This technique may be used to cross large open areas that provide little concealment for dismounted enemy infantry.

A mechanized infantry platoon may also conduct a mounted attack without tanks to maintain the momentum of a successful attack, either when no tanks are attached or when the tanks are attacking on a separate axis. The IFV platoon should move using the same formations as mentioned above, except that a location short of the objective should be designated where the infantrymen would dismount from their vehicles. This is considered necessary because IFVs do not have the same shock effect or the overwhelming firepower that tanks have.

If possible, though, the final assault should be a mounted one. When this is done, the IFVs should closely follow the tanks and move as quickly as possible across the objective.

If necessary, the infantrymen could dismount on the far side of the objective and then move back across it to

clear any remaining pockets of resistance. The tanks and IFVs should take up firing positions to engage the retreating enemy forces or to prepare to meet a counterattack. If a dismounted assault has been conducted because a mounted assault was not possible, the IFVs and tanks should be brought forward quickly to continue the attack or to prepare to ward off a counterattack.

Regardless of how it assaults the objective, the platoon must immediately take action to consolidate and reorganize once the objective has been seized.

In reorganizing, any key soldier who has been lost must be replaced and the ammunition on board the IFVs redistributed among the squads. Casualties must be attended to and a status report sent to the company or company team commander.

## DEFENSE

The IFV has also increased the mechanized infantry platoon's ability to defend a position. The platoon can now kill enemy carriers and tanks at long ranges, something it could not do before. The platoon leader must know how to take advantage of the weapon systems he has.

In the defense, there are two principal ways the platoon leader can organize his platoon. If the fighting vehicle teams and close combat teams are co-located, the teams should remain under the direct control of their squad leaders. Thus, the platoon would remain organized in three squads and would be easier for the platoon leader to control.

In other situations, when there are both mounted and dismounted enemy avenues of approach, the platoon leader might have to separate his fighting vehicle teams and his close combat teams and consolidate them into a single fighting vehicle element and a single close combat element. Although the platoon leader would still maintain control over the entire platoon, he would normally have the platoon sergeant control one element while he controlled the other.

Whenever possible, the platoon should occupy only one battle position. Occasionally, though, the elements might be required to fight from separate battle positions.

If this should happen, the company commander would assume control of each separate element.

Sometimes, because they do not have time to dig in once they have displaced from their initial positions, the infantrymen may have to remain mounted during a defensive battle. But any time the platoon stays in one position, the close combat team should dismount and dig in.

Whether mounted or dismounted, with the IFV the ability of infantrymen to fight on a future battlefield will be greatly improved. The IFV's firepower, speed, and armor protection give the infantry platoon the ability to take advantage of any enemy's weakness by counterattacking as part of a larger force or even by conducting a limited counterattack by fire on its own initiative.

While the platoon leader must be extremely careful not to overexpose or overextend himself, he will be able to move rapidly and counterattack by fire and then return to his defensive positions before the enemy can react.

The improved mobility of the IFV will allow infantrymen to be more agile and more responsive than they have been in the past and to survive in the process. The greatly improved antiarmor protection that the vehicle gives them along with their ability to fight effectively in both good and limited visibility conditions will make them the most effective mechanized infantrymen the U.S. Army has ever fielded.

Combined with the resolve of highly dedicated officers and well-trained soldiers, these infantrymen will continue to perform a major role as an equal partner in the combined arms team. They will not just fight to survive; they will survive to fight and win.

**CAPTAIN ROBERT P. SEDAR**, until recently assigned to the Command, Tactics, and Doctrine Department of the U.S. Army Infantry School, is now serving with VII Corps in Germany. He has commanded an infantry OSUT company, has served as a platoon leader in a mechanized infantry company, and has held various company and battalion staff positions. An ROTC graduate of the University of Wisconsin, he has also completed a number of military courses, including airborne and Ranger and the Special Forces Officer Course.





# TRAINING NOTES



## PORTRAD

LIEUTENANT PHILLIP D. MACKLIN

In any future war the air battle may be the first and most critical one; if we lose it, obviously, it may also be our last one. The importance of small arms and air defense weapons in the air battle has been demonstrated in the past. In the Korean conflict, for example, our Air Force lost almost five times as many aircraft to fire from these weapons as it did in air-to-air combat. It is important, therefore, for us to teach our soldiers how to use their air defense weapons effectively and then to see that they have a chance to practice these skills.

To make it easier to teach them, I have designed a training aid that I call the Portable Air Defense Training Device (PORTRAD). The device, built by James Braun at Fort Stewart, Georgia, is inexpensive yet realistic in its ability to provide training for soldiers in the concepts of air defense. It fills the gap in two often neglected areas of an infantry battalion's short range air defense readiness: effective on-hand training for Redeye gunners and active on-hand small arms air defense (SAAD) training for infantry riflemen.

The PORTRAD consists of a mock-up aircraft constructed of galvanized steel, which uses a butane

torch or a railroad flare to simulate an infrared (IR) source. The mock-up aircraft, suspended by two hooks from a 20-foot steel cable, is mounted on a horizontal pulley system (see diagram). This pulley system consists of a drive pulley and a static pulley (connected by an automobile fan belt) at one end and, at the opposite end, another static pulley. With a hand crank, the target can be made to travel back and forth across the cable at varying speeds. The device can be used by Redeye gunners or infantry riflemen from any angle or distance.

The entire target system is mounted on two telescoping poles whose individual height can be adjusted so that the target appears to climb and dive. Both poles can be raised to a height of 20 feet. The PORTRAD can be transported, disassembled, by a two-and-one-half-ton truck to virtually any designated training site and reassembled in less than 20 minutes. A ladder can be used to help put it together and take it apart.

The aids that are now used for training Redeye gunners are the moving target simulator (MTS), remote control miniature targets, and actual aircraft in flight, when they are avail-

able. But none of these training methods is truly cost-effective, and few are readily available to most Redeye units. The MTS is the most effective of the three, but it is so expensive to build and operate that there are only 13 of them in operation. Because of the expense involved in commuting to the nearest MTS facility, many Redeye gunners receive simulator training only once every 10 or 12 months.

With the PORTRAD, Redeye gunners, using the XM49E3 tracking head trainer (THT), can constantly practice in their unit areas the necessary sequence of steps for engaging aircraft. The THT is identical to the weapon itself, except that it does not fire live rounds. It has a performance indicator mounted on it, which is used to coach gunners through the steps of operating the weapon.

The PORTRAD does not require a power source as the MTS does; it requires little maintenance (only spot painting and lubricating the pulley); and it will accommodate an unlimited number of gunners at several positions and distances who can simultaneously engage its heat source. (The MTS can accommodate only two gunners at a time.) Also, with the

MTS the gunners must engage their targets at a set distance, while the PORTRAD allows the evaluator to vary the gunners' distance and angle from the target. This feature exposes the gunners to the various aspects of target approach that they may experience in actual combat. And since the PORTRAD is used in a field environment, it also exposes soldiers who are training with it to such climatic variables as sunshine, wind, clouds, humidity, and rain, which they can expect to face in combat. The MTS, by contrast, must be used in a temperature-controlled facility.

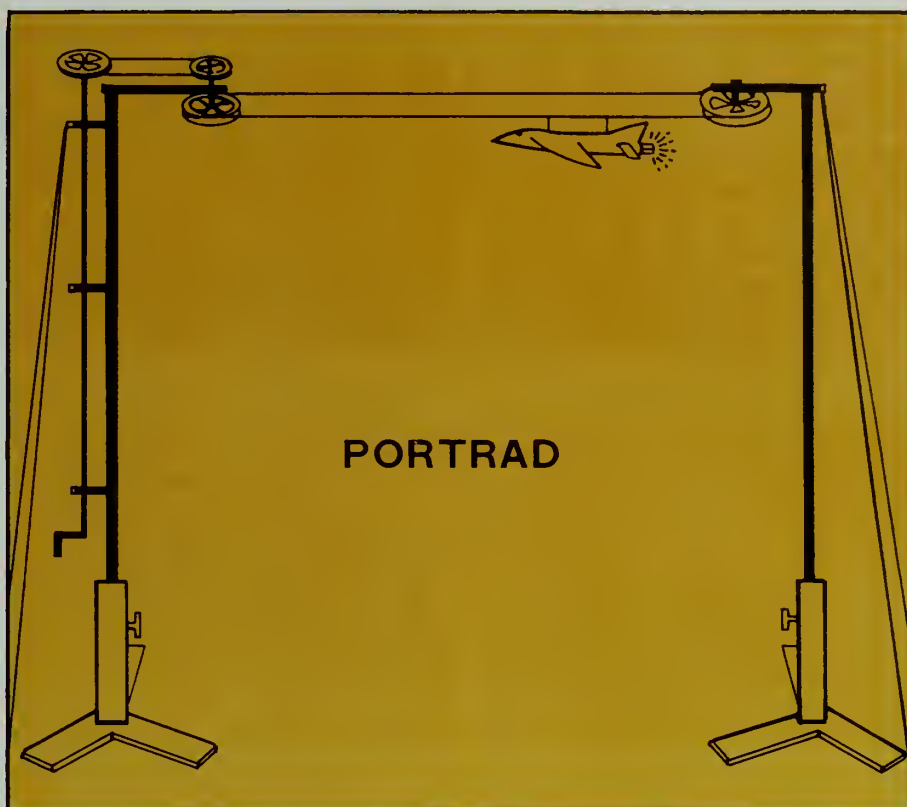
### SMALL ARMS

The PORTRAD is also a definite asset to SAAD instruction. With it, and by using subcaliber weapons, infantrymen can practice the principles of SAAD effectively. The basic SAAD principle requires that rifle and machinegun fire be directed at a designated aiming point ahead of an aircraft. Several gunners firing at the same aiming point direct a volume of fire at that single point until the aircraft has flown past it. This curtain of fire placed in the path of an attacking aircraft will either deter or destroy it.

Soldiers armed with BB guns, or with M16A1 rifles fitted with .22 subcaliber devices, can fire at the PORTRAD target, thereby simulating the actual engagement of an attacking aircraft with small arms. Since the target travels along a prescribed path just as an attacking aircraft would, the infantrymen can get good practice in using the reference point method to fire at a hostile aircraft. If several riflemen are told to fire at the PORTRAD target at the same time, they will get good practice in volume fire.

The proportional ratio between the 7.62mm (or the 5.56mm) projectile and the typical Warsaw Pact ground support aircraft can be quite easily duplicated — that is, BB pellet to PORTRAD target — by merely adjusting the distance from which the gunners engage the target.

The riflemen can practice the tech-



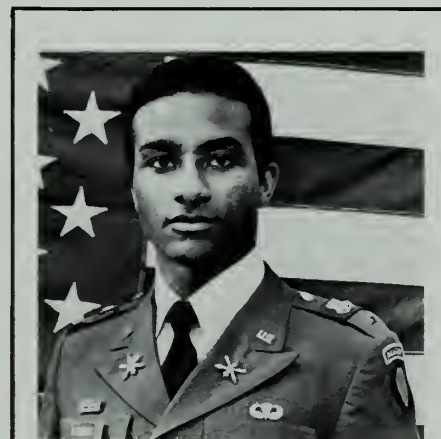
niques of firing small arms at enemy aircraft from different aspects and in different SAAD firing positions (prone, kneeling, standing). And they can receive immediate feedback on their performance — the projectile's impact with the galvanized steel target will tell them when they have applied the correct lead.

In addition, it is possible to attach model aircraft silhouettes to the PORTRAD for aircraft recognition training.

The device and its ability to provide cost effective, convenient, and realistic training for Redeye gunners is being tested weekly by Redeye personnel of the 3d Battalion, 19th Infantry, at Fort Stewart. The PORTRAD should be effective with the new Stinger air defense weapon as well, because with its M134 Tracking Head Trainer the Stinger is basically the same as the Redeye both in appearance and in operation.

It is quite probable that in any future war our enemy's aircraft will not only match ours in quality, they will probably have far more to throw against us. Without an effective means of countering sophisticated air

attacks, a ground commander's ability to maneuver his units may be seriously hampered. Any device that will help us train our infantrymen to use their Redeyes and their small arms effectively against aircraft will be an asset, and I believe the PORTRAD is such a device.



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# MORTEX

CAPTAIN MARK L. JAGO  
STAFF SERGEANT WILLIAM W. McMASTER

Remember the last time you received an "impossible" training requirement? Those requirements all have the same characteristics: they are monumental undertakings with minimum resources, and they should have been completed yesterday. Fortunately for you and your "impossible" requirement, you were "innovative"; you picked up the telephone and called everyone you knew until you found someone who had had the same requirement last week. He gave you his solution and saved the day.

But what would you do with a mission like this?

**TASK:** Conduct ARTEP subunit evaluations for indirect fire elements.

**CONDITIONS:** At a local training area, without service ammunition and without suitable terrain, evaluate a level-one mortar gunnery table for four battalion mortar platoons within a two-day period.

**STANDARDS:** Provide the units with a realistic simulated combat environment that will produce accurate evaluation results.

The above mission is not really a hypothetical one; it is, in fact, an increasingly real and familiar one for units that must operate in isolated, restrictive areas and with limited logistical support.

And so it is with the Berlin Brigade. The Brigade runs into the same training problems as the rest of the Army: ammunition costs and allocations, fuel and transportation costs, and a

scarcity of good major training areas. These are compounded by the Brigade's isolated location and by its urban-oriented mission. The Brigade must rely heavily on subcaliber devices and simulation devices and systems to help meet its specific needs for each type of training. But it was the Brigade's requirement to plan and conduct the Army's first ARTEP in military operations in urban terrain (MOUT) that served to bring together two diverse training systems to meet the Brigade's need for a way to realistically evaluate its indirect fire capabilities.

Before this, all of the Brigade's indirect fire training was conducted independently. Its artillery battery used the M31 trainer for gunnery training while the infantry battalion mortar platoons used the M1 inert Sabot for theirs. This gunnery training often amounted to little more than crew-drill because of the erratic performance of the subcaliber ammunition. Both the mortar and artillery forward observers relied heavily on the DATA-SAAB BT33, Observed Fire Trainer (OFT). Although the results from the OFT were excellent, they presented a false picture in that the OFT could not provide the kind of realistic coordination that is required in the overall indirect fire process.

It seemed to the Brigade's trainers, therefore, that the ideal solution would be to combine these individual training devices to integrate the en-

tire fire direction process. They had to make certain, of course, that the firing data determined by the training unit's FDC and the resulting fire mission with the subcaliber device were realistically portrayed on the BT33.

## SCENARIO

The scenario that was developed for the Brigade's mortars paralleled a combat situation, and the area of operation for the training was the terrain that was available on the OFT. The gun locations — both physical and simulated with the OFT — were identical. This enabled the FDC to compute, the observer to adjust, and the guns to fire as they would under actual fire conditions. The observer's position and the target area were identified on the OFT. Then this information was superimposed on the map of the training area in such a way that the range's impact area simulated the target area of the OFT scenario. Once the target area was identified, the gun positions were placed so that their actual direction of fire coincided with the simulated direction of fire of the OFT guns. Based on this, the following known (simulated) data was determined:

- Observer position (surveyed).
- Location of registration point (surveyed).
- Center of firing position (surveyed).

- Center grid coordinates of the final protective fires.

This data provided the basis for developing the operations overlay and the operations order. With this data, it was felt that all of the tested units would be able to meet the requirements of a level-one ARTEP.

The key to putting the exercise into operation was the establishment of the control element. The manpower and equipment requirements for this control element consisted of a chief evaluator, an FDC evaluator, a forward observer evaluator, a firing unit evaluator, a control element fire direction computer, an OFT operator, four TA-312s or PRC-77s, and one plotting board and firing chart.

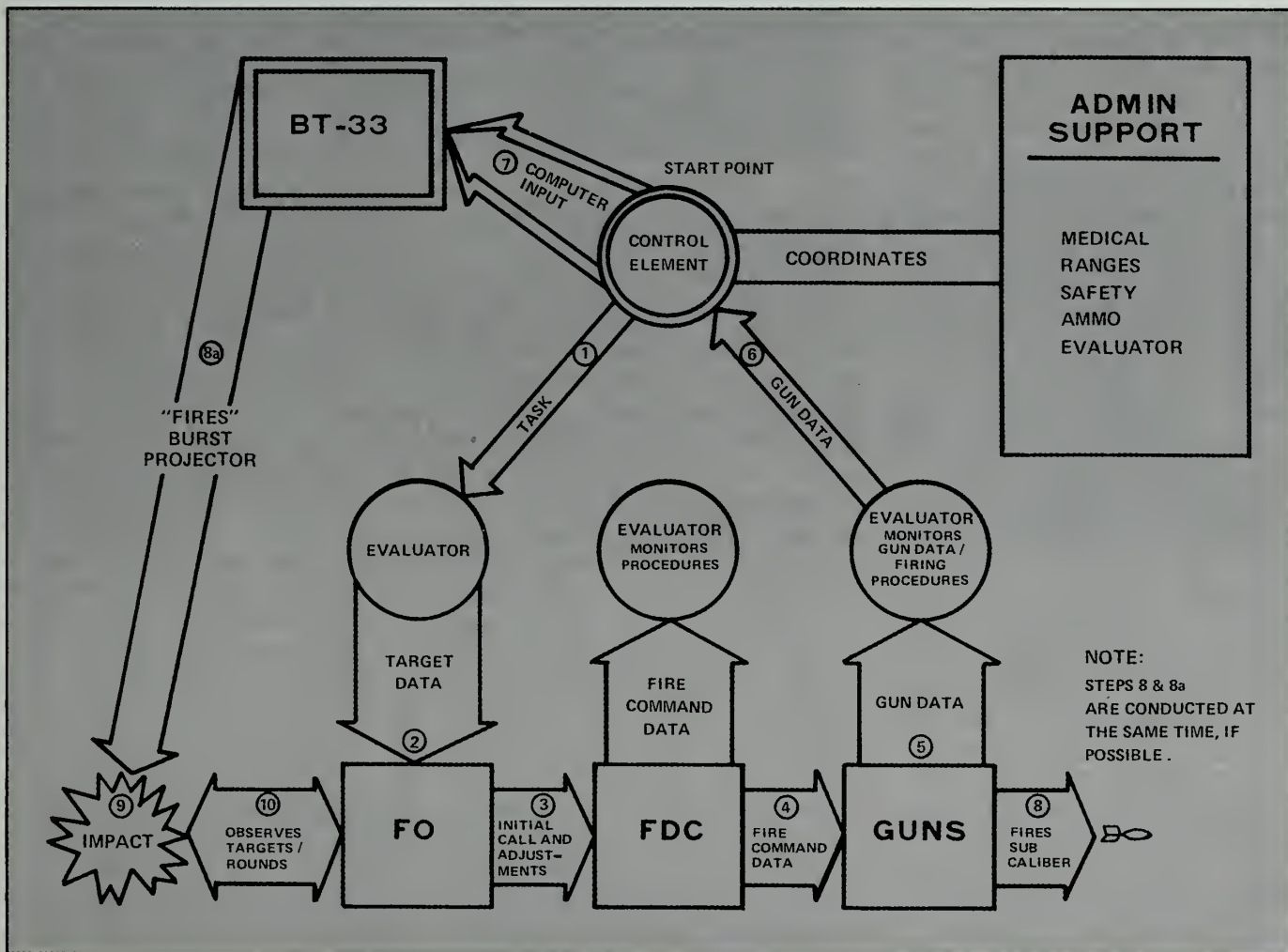
The control element was responsible for creating the simulated combat environment; it was the link between the training unit (FDC and guns) and the OFT (forward observers). Its primary job in this regard was to con-

vert the gun data into computer data that would fire the simulated round. The control element also isolated the training unit from its administrative environment by coordinating and controlling its logistical support and facility operation. It also monitored the training unit's procedures with its evaluator nets to verify the computer data and to provide the unit with a detailed evaluation report. The diagram shows the flow of information and the controller monitoring responsibilities once the unit had occupied the firing position.

To isolate and evaluate each sub-element function while maintaining realism, it was necessary to determine the point of impact of each round as if it had been service ammunition and to show that point on the OFT screen. This was accomplished by establishing a control element fire direction chart that plotted each round fired with the actual

data on the guns (minus charge). To provide accurate feedback, the firing position evaluator had to determine each gun's actual mounting azimuth and send that information to the control group's fire direction chart operator. This process insured that any discrepancy — either from improper declination of the aiming circle or through some other error — was applied to the OFT's simulated firing data. From this point on, the only data applied to the control chart was the data actually placed on the guns. This insured that any errors transmitted to the guns or made at the guns was depicted for the observer by the BT33.

By working with the surveyed data and establishing a fire direction chart, the control element determined each element's proper response. Since each sub-element was monitored, every error was quickly apparent. To maintain realism, the errors were





noted for a later evaluation, but were not corrected unless they presented an actual safety hazard. The training unit continued to function as it normally would under live fire conditions, and experienced real time constraints and communication problems, as well as having to react to any possible error that it might commit.

When the Brigade first considered this system, many questions had to be answered. Could the actual gun data be duplicated on the simulator? Would the reactions, computations, and effects be realistic? Would the exercise be challenging using surveyed data? Would some of the real factors in the indirect fire process be sacrificed by the simulation portion of the system?

The results of eight mortar platoon evaluations (two of which were 4.2-inch mortar units) proved conclusive. All of these major questions were answered quite positively.

- The actual gun data was realistically duplicated by the system and depicted on the BT33.

- The reactions and corrections of the forward observers were realistic and valid.

- Human errors were allowed, not forced, to occur. Placing the training unit in an ARTEP situation may have created pressures which in turn pre-

cipitated errors. But since pressure is an integral part of combat situations, its presence made the evaluation that much more valid. Moreover, errors were identified even during successful fire missions.

- A properly trained unit would detect errors and achieve success by taking proper corrective actions. While errors were an indicator of a unit's level of proficiency, the manner in which the unit dealt with the mistakes was also a valid indicator.

The cost savings derived from using this system instead of using a major training area and service ammunition was tremendous. In fact, in at least one area this mortar exercise system was superior to a live fire situation: it permitted human error. Because the explosion of a round was simulated by the BT33 while the actual ammunition always fell into a designated impact area, otherwise hazardous events could be experienced by the training unit. Some examples of these were:

- Unobserved rounds.
- Rounds falling outside the proper boundaries.
- A section laid with mounting errors.
- Errors in the plotting of positions and targets.

These were real-life error pos-

sibilities, the results of which would never be allowed to occur in a major training area. From their experience with this system, the Brigade's trainers felt that it more closely duplicated a combat live fire program than any other training situation did. It certainly proved itself in an ARTEP environment.

**CAPTAIN MARK L. JAGO** recently completed the Infantry Officer Advanced Course. As a mortar platoon leader in Germany he conducted live fire exercises on U.S. Army and German ranges. At the time he coauthored this article, he was the Training Support Officer for the Berlin Brigade. He is now assigned to the 4th Psychological Operations Battalion at Fort Bragg, North Carolina.

**STAFF SERGEANT WILLIAM W. McMASTER** has served in various artillery and mortar platoon positions including a tour in Vietnam with the 25th Infantry Division. When he coauthored this article, he was assigned to the office of the G3, Training Support Branch, Berlin Brigade. He is now the battalion career counsellor for the 1st Battalion, 11th Field Artillery, at Fort Lewis, Washington.

## NBC Training

CAPTAIN MICHOR M. GENTEMANN

From all indications, the Soviets have superior nuclear, biological, and chemical weapons and they plan to use them. This means that the United States also must be prepared to use

such weapons.

In the past, NBC training has been low on the list of priorities, especially in Reserve Component units. The usual training program consisted of a

one-hour lecture on NBC, which was supposed to fulfill the requirement for the year.

But there are 28 tasks that each soldier must know to survive on an

## NBC INDIVIDUAL TRAINING STATIONS

1. **MASKING**
  - Put on and wear a protective mask.
  - Administer mask to mouth resuscitation.
  - Store protective mask w/hood in carrier.
  - Satisfy personal needs in a chemical environment.
  - Put on and wear protective clothing.
2. **DECONTAMINATION**
  - Decontaminate equipment using ABC M-11 decontamination apparatus.
  - Decontaminate self.
  - Decontaminate individual equipment.
3. **NUCLEAR REPORTS**
  - Prepare and submit NBC-1 reports.
4. **GENERAL NBC TASKS**
  - Give the unit alarms for chemical/biological attack.
  - Identify a chemical agent using ABC-M8 detector paper.
  - Recognize and know data on NBC contamination markers.
  - Cross contaminated areas.
5. **NUCLEAR REACTION**
  - Reaction to a nuclear explosion.
  - Read and report radiation dosages.
  - Correctly charge the pocket dosimeter.
  - Prepare supplies and equipment for NBC attack.
6. **MASK MAINTENANCE**
  - Perform operational maintenance on a protective mask.
  - Exchange filters on protective mask.
  - Fitting of the mask.
7. **CHEMICAL AND BIOLOGICAL AGENTS**
  - Be able to recognize nerve agent, symptoms, and give correct first aid and decontamination.
  - Same as above except blister agent.
  - Same as above except blood agent.
  - Same as above except choking agent.
8. **UNIT NBC SOP**
  - Individual NBC requirements.
  - Unit NBC requirements.
  - Masking and unmasking procedures.
  - Perform back pressure armlift method of artificial respiration.

NBC battlefield, ranging from how to read a dosimeter to how to provide artificial respiration to how to treat a nerve agent casualty. Even though the tasks themselves are quite simple, the difficulty lies in the number of tasks involved and in their newness. Soldiers cannot master these tasks by sitting through a lecture; they need to be shown how to do them, and then they need to be allowed to actually do them.

The NBC team at U.S. Army Readiness Group (RG) McCoy (Wisconsin) has developed an NBC hands-on training program that has been used successfully by about 50 different Army Reserve and National Guard units in the state.

To ease the job of the instructor — who normally has to prepare for a class on his own time — RG McCoy has prepared training aids and detailed lesson plans for all the Level 1, 2, and 3 NBC tasks. With these plans,

and a training period of one to two hours, even a novice instructor can teach these tasks.

The 28 NBC tasks that each soldier needs to know can be grouped into eight general stations, as shown on the chart. The stations are arranged so that each can be taught in about 20 minutes, with one instructor at each station.

The emphasis behind the program is hands-on training. The lesson plans are prepared in short paragraphs so that the instructor can explain and demonstrate a task. He then has the student perform the task. For example, at the decontamination station, the instructor issues each student an M258 Decontamination Kit and daubs a simulated liquid nerve agent (90 weight oil) on his hand. He then has the student watch as he demonstrates each step in the decontamination process. The instructor follows this format until all the steps are

completed.

The outcome is very satisfactory, because a soldier who has actually decontaminated himself and who will be able to do it again is more valuable to the Army than one who has only studied it but has never actually used the equipment.

Using this program, a unit NBC officer and NCO can train the soldiers in their unit and know that these soldiers can do the tasks. The equipment required is a mixture of TOE equipment, non-expendables, and expendables, all easily obtained by a company. Some of the training items must be fabricated — blank markers and NBC report cards, for example. Other training aids, such as the 90-weight oil to use as a simulated nerve agent, must be requisitioned locally. The program could easily be adapted by Active Army units.

Anyone who is interested can obtain the lesson plans and the list of equipment for this program by writing RG McCoy, ATTN: CPT Gentemann, Sparta, WI 54656.



**CAPTAIN MICHOR M. GENTEMANN**, an Ordnance officer, is an ROTC graduate of the University of Washington. When he prepared this article, he was assigned to Readiness Group Fort McCoy in Wisconsin. He has completed several military schools, including airborne and Ranger and the NBC Officer's Course.



# S4 Workbook

CAPTAIN MARTIN B. METZ

For the battalion or brigade S4, there are few "book" solutions to the myriad supply problems he faces when his unit takes to the field. The actual rate of fuel consumption by a mechanized infantry battalion, for instance, may differ from that shown in the field manuals. Evacuation routes will certainly change; unexpected maintenance problems will undoubtedly disrupt carefully thought-out maintenance plans; and unplanned fluctuations in personnel strength can drastically change his unit's Class I requirements.

The best thing that an S4 can do to keep track of these and his other problems (and their solutions) is to put them into their proper places in an S4 workbook.

A good S4 workbook should be compact and easy to use. Probably the easiest one to make consists of a ring binder and looseleaf pages indexed by specific subjects. It should contain reference material that directly affects the operations at hand, and it should provide an organized way to record supply, maintenance, service, and consumption data.

It can be as rough or as polished as the S4 desires; after all, it is only a temporary and informal record, one that will continually change to meet the unit's changing situations. The material in it can be used by the S4 to prepare his logistic estimates and reports, while the lessons that have been learned and recorded can often

assist him in his after-action analysis of a particular operation. By constantly reviewing the material, an S4 might spot problem areas that need to be corrected or operating procedures that need to be reviewed.

There are numerous sources from which the information that should go into a workbook can be drawn. For example, there is an almost constant flow of information into the combat trains area or the brigade's logistics control point. There are the visits the S4 makes to the units and those they make to his area. There is information in the form of ideas, inspections, opinions, and computations generated by the various supporting elements and the forward area support coordinator.

A unit's solutions to problems that it has encountered in the field are also ideally suited for inclusion in a workbook. If mess personnel, for example, have used certain field expedients to keep a unit's subsistence cool in a desert environment, it would be nice to have a record of what those expedients were so that the unit can consider using them again the next time it finds itself in a similar environment.

There are other items that should find their way into the workbook: lists of things to accomplish or to follow up, things that should be included in upcoming reports, and various checklists. In short, the workbook's contents should be dictated by the

unit's mission, whether it is tactical or non-tactical.

The value of the workbook will depend on the people who write in it and on how well they use the data in it. All of the people in the S4 section should know about the workbook, how to record items, and how to look up information in it. It is not a bad idea for the S1 personnel to be familiar with the workbook, too, if they are co-located with the S4 section.

As items in the workbook are taken care of, they should be lined out or destroyed, unless they have lasting value. Items that have a continuing use can often form the backbone of a good S4 workbook. The S4 should be careful, though, about any classified material he might put into his book, since its disposal could present serious problems later.

Here is one way a workbook can be organized by sections and subjects:

- **Locations:** boundaries; supply and service activities, facilities, and installations; combat and field trains; headquarters and logistics control point locations; evacuation and supply routes; drop zones; landing and pick-up zones; logistics release points; traffic control points; pre-stockage.

- **Maintenance:** equipment status; direct support unit input; maintenance management; equipment evacuation; equipment replacement.

- **Supply:** strength of supported units including prisoners of war,



labor forces, and civilian internees and detainees; critical items or shortages; notes on the various classes of supply, including expenditure and consumption factors; aerial resupply or air drops; supply procedures; and such miscellaneous items as excess, captured enemy materiel, routine supplies, and special supplies.

- **Services:** transportation timetables, march orders, available vehicles, and number of people or amount of equipment moved; construction; medical and health services; graves registration; labor forces; laundry; bath point and clothing exchange; decontamination; water purification.

- **After-action reports and lessons learned.**

- **Areas of command interest.**
- **Communications:** directories; teletype; wire; radio; messenger.
- **Miscellaneous:** losses or damages from the enemy, subversive ac-

tivity, or natural causes; rear area protection; instructions to shift or special staff personnel; coordination with civil affairs, or G5 personnel; points of contact; any area not otherwise covered.

A good workbook is necessary to the S4 if he is going to do a good job of managing all of the loose ends that can develop while a unit is in the field.

Who knows? Maybe we won't have to reinvent the wheel after all.



**CAPTAIN MARTIN B. METZ**, a 1974 ROTC graduate of Wichita State University, has served in various platoon and company positions in Germany and the United States and has been an Assistant Brigade S4 with the 9th Infantry Division. He participated in a battalion deployment exercise during REFORGER 78 and in a brigade deployment in BRAVE SHIELD 20 to the desert training area at the Yakima Firing Center.

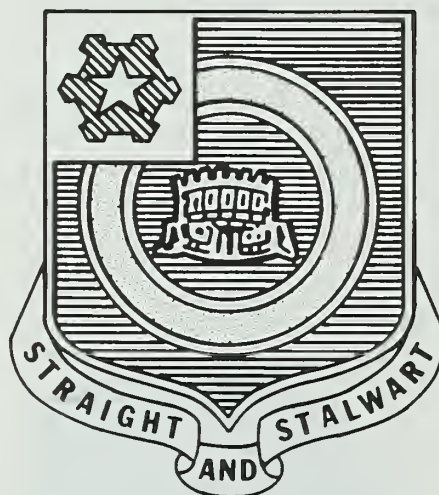


# PAST TIMES



The 1st Battalion, 41st Armored Infantry Regiment, is cited for outstanding performance of duty in action against the enemy from 25 December 1944 to 16 January 1945 during the Allied operation against the German penetration into Belgium. The 1st Battalion, 41st Armored Infantry Regiment, fought and lived in snow and subzero temperatures in a sustained drive against the enemy from Ciney, Belgium, through Brazards, Conneux, Conjoux, Soigne, then through Grandmenil and Odeigne, Belgium, on to Houffalize to close the Allied pocket around the German salient in the Ardennes. The drive was launched through well-dug-in German infantry, organized in depth in successive strong points and roving antitank rocket teams, heavy enemy artillery fire, nebelwerfer, and small-arms fire from enemy positions protected by dense wooded areas. Despite the relatively short daylight

hours and long nights spent in digging in defensive positions in the frozen ground, the cold, tired men of the 1st Battalion pushed doggedly forward in the face of severe losses of personnel. At times their hands and feet were so cold that they could walk and fire their weapons only with the greatest difficulty. Many suffered from actual frost bite, but those gallant, determined, armored infantrymen gained their assigned objectives at a cost of 8 officers and 316 enlisted men after capturing 575 Germans and killing or wounding 540 of the enemy troops. This bold and aggressive action of the 1st Battalion, 41st Armored Infantry Regiment, carried on under the most difficult conditions, did much to further the 2d Armored Division's successful offensive against the German bulge in Belgium and is worthy of the highest praise. (War Department General Order 11, 30 January 1946.)



# ENLISTED CAREER NOTES



## BRANCH CHIEF'S NOTES

One of the actions we are working on in Infantry Branch is to determine ways of assisting the Commandant of the Infantry School as he assumes personnel proponency for CMF 11. Under the proponency concept set forth in draft AR 600-101, Special Proponency, the Infantry School has been given primary responsibility for providing advice and assistance to DCSPER on the formulation and implementation of personnel management policies that relate to the professional development of the Infantryman.

In support of this change, we prepared a briefing that outlined the current status of CMF 11 and identified personnel-related problems and issues within CMF 11. We presented these issues to the Commandant of the Infantry School on 6 July 1981. In the long term, we will assist the School in finding solutions to personnel proponency problems.

The shift of proponency responsibility to the Infantry School is designed to accomplish the following objectives.

- To establish the U.S. Army Infantry School as the focal point for all Infantry-related matters involved in the life-cycle personnel functions of procurement, training, education, distribution, sustainment, separation, and retirement.
- To provide the Infantry enlisted soldier with an agency specifically charged with representing his collective, specialty-related, long-term, professional development interests.
- To ensure that personnel management policies, programs, and procedures implemented by Headquarters, DA, incorporate Infantry-related recommendations from the

Infantry School.

- To achieve the underlying goals and objectives of the Army's Enlisted Personnel Management System (EPMS).

The movement of Infantry proponency to the Infantry School is a significant step. This change will allow the input of ideas from sources closer to the action and will improve the management and professional development of the soldiers in CMF 11.

We in Infantry Branch are dedicated to helping this transition go as smoothly as possible. In the months to come, I will include more on the progress of this transition and highlight the changes that will affect the management and professional development of Infantrymen.

**LTC ROBERT J. GRAHAM**

## SF AND RANGER VACANCIES

The Army is looking for enlisted volunteers for Special Forces and Ranger Battalion positions at several CONUS installations. Special Forces volunteers now serving in the following grades and MOSs are especially needed: SGT—05B; SSG/PSG/SFC—91B; PSG/SFC—11C, 12B, 31V; PSG/SFC/MSG/1SG—11B.

Those selected will receive airborne training at Fort Benning, Georgia, and Special Forces training at Fort Bragg, North Carolina, before being assigned to their units. Openings now exist at Fort Bragg and Fort Devens.

All SF qualified soldiers are reminded of the requirement to be DLAB tested for language training aptitude in accordance with AR 611-6.

There are also requirements in the 1st and 2d Battalions (Ranger), 75th

Infantry for 11B soldiers in all ranks up through PSG/SFC and for 13F soldiers in the ranks of SGT/SSG.

A soldier who is serving overseas must complete his tour before he can return for training and reassignment. His application should be submitted not later than eight months before the date on which he is eligible to return from overseas.

Ranger volunteers in all ranks will receive airborne training at Fort Benning before reporting to their units. Sergeants and above will also attend the eight-week Ranger course at Fort Benning before joining their units. DA Pamphlet 351-4 and Chapter 6, AR 614-200 apply.

The Infantry/Armor point of contact is SFC Kinsley, AUTOVON 221-8340.

## PLATOON SERGEANTS WORKSHOPS

TRADOC's Training Development Institute (TDI) recently conducted an eight-day workshop at Fort Jackson, South Carolina, for 18 platoon sergeants assigned to various advanced individual training (AIT) units. The purpose of the instruction was to standardize and refine the leadership techniques that platoon sergeants use during AIT in teaching basic skills such as drill and ceremonies, physical readiness training, and how to wear the Army uniform.

The platoon sergeants also received several hours of instruction in such areas as male-female training management, communication and counseling skills, legal affairs, and search and seizure.

The participants are expected to take the knowledge they receive back to their installations and train more AIT platoon sergeants.



# OFFICERS CAREER NOTES



## BRANCH CHIEF'S NOTES

There are three major developments under way that will affect each Infantry officer's career: the Defense Officer Personnel Management Act (DOPMA), a change in Specialty 11 proponency, and the U.S. Army Manning System. DOPMA and Infantry proponency are on their way toward implementation, while the U.S. Army Manning System is in the conceptual stage with work still to be done before it can be implemented.

DOPMA was discussed in the July-August 1981 issue, and I would like to highlight in these notes the other two actions and also provide you with an updated chart of who is managing your career, since our staff has undergone several changes over the summer. Your assignment officers maintain up-to-date fact sheets on all of these personnel developments, and they will assist both you and your commander as required.

**LTC JAMES A. SULLIVAN**

## SPECIALTY 11 PROPONENCY

The purpose here is to transfer the responsibility for Specialty 11 proponency from the Army Staff to the Commandant of the U.S. Army Infantry School.

Under the Officer Personnel Management System (OPMS), proponent agencies on the Army Staff have been designated for the commissioned officer specialties. These proponent agencies are charged with providing technical advice through ODCSPER to MILPERCEN regarding their respective specialties.

Consistent with recent guidance from the Chief of Staff of the Army, the program is undergoing a major revision. This initiative is designed to establish a formal proponency arrangement with service school commandants so that they can influence and reinforce personnel management policies regarding the specialties for which they share an interest. Plans generally call for the transfer of proponency responsibilities from Army Staff agencies to school commandants or other organizations as deemed appropriate — and for proponents to deal directly with MILPERCEN on day-to-day technical personnel systems matters and through channels (in concert with "principal coordination points") to ODCSPER on more substantive policy issues.

A revised regulation will designate the Infantry School Commandant as the proponent for the commissioned officer Specialty Code (SC) 11 (and for enlisted CMF 11 as well). The provisions of the revised regulation will be extended, for the first time, to the Reserve Components.

The specific objectives of the Infantry specialty proponency system now under development are as follows:

- To establish the Infantry School as the focal point for matters related to Specialty 11 that are involved in the life-cycle functions of personnel management.
- To provide Infantry commissioned officers and enlisted personnel with a specific point of contact, the Infantry School Commandant, who is charged with representing their collective, specialty-related, long-term, professional development interests.
- To ensure that the personnel

management policies, programs, and procedures established and implemented by Headquarters, Department of the Army, incorporate specialty-related recommendations of the Infantry School Commandant, principally in the areas of personnel management, training and doctrine, standardization and evaluation, stability and cohesion, and force modernization.

- To foster the achievement of the underlying goals and objectives of the Army's OPMS and the professional development policies and programs that are applicable in the special branches.

On 6 July 1981 a coordination conference was held at Fort Benning to discuss how Infantry Branch will manage this transition to the USAIS. Future issues of INFANTRY magazine will contain updated information. In essence, the Commandant of the Infantry School is the "Chief of Infantry" and as such will provide guidance to the Chief of Infantry Branch for the career development and the professional utilization of Infantry officers.

## U.S. ARMY MANNING SYSTEM

A primary goal of the Army is to enhance combat effectiveness. Turbulence in manpower (positions), personnel (people), and force structure (organizations) inhibit combat effectiveness and impede commanders in developing and maintaining cohesive, well-trained units.

Over the past three decades, the Army has adopted management philosophies that by focusing on individuals have generated a high turnover in units. The resultant turbu-

lence has reduced readiness by inhibiting the development and the sustainment of cohesive, thoroughly trained squads, crews, and sections.

Having recognized the systemic shortcomings of the manning process, the CSA recently directed several initiatives that are designed to analyze and correct specific components of the Army manning system. These include:

- Project COHORT (Cohesion, Operational Readiness, Training). COHORT is testing the effectiveness of accessing, training, and introducing into the operational forces (both CONUS and overseas) company-sized units as entities. This is a FORSCOM initiative under ODCSOPS pronency.

- The Regimental System Study. Developed by TRADOC, the study seeks to enhance cohesion through the adoption of an American regimental system that draws on the British and Canadian models.

- The Army Cohesion and Stability Study (ARCOST). The study addressed numerous initiatives to re-

duce turbulence, to improve stability, and to enhance cohesion (ODCSPER).

- The Management of Change, Implementation of Change, and MTOE Standardization programs aimed at reducing turbulence in the force structure process (ODCSOPS).

- U.S. Army Concept Analysis Agency Unit Replacement Analysis (URSA).

- The Army Personnel System Review, conducted by The Inspector General (TIG).

- General Research Corporation — Personnel Replacement System Policy Analysis.

Using the recent turbulence-reducing initiatives as the basis, the CSA directed the formation of a Manning Task Force to develop and implement a manning system that enhances combat effectiveness by keeping soldiers together in units longer. The CSA directed that this objective be pursued through the rotation and/or replacement of units in an environment where career soldiers are offered the opportunity to

have a CONUS homebase within the framework of an American Regimental System.

In describing the concept envisioned by the Manning Task Force, some definitions were necessary:

**Stabilization** — Keeping soldiers together in units longer. The stability of a soldier is measured by tenure in one unit rather than tour length at a location. To achieve this goal, there will be a corresponding need for stabilization in both manpower and force structure.

**Unit rotation** — The movement of a unit from a CONUS homebase to an overseas base and back. This may involve rotating battalions within which companies are periodically replenished with groups of first-termers, or rotating companies or smaller units. The concept envisions the concurrent use of an individual replacement system.

**Unit replacement** — The movement of a unit from a CONUS location to overseas and its disestablishment at the end of a tour and replacement with a newly deployed unit.

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LTC SC 11 OS Assignments & Other Specialties	MAJ Lawson W. Magruder	221-0317	325-0317
Asst, LTC Assignments	Mrs. Elaine Martin	221-0317	325-0317
LTC SC 54 Assignments	MAJ Garrett T. Cowsert	221-0317	325-0317
MAJ/CPT SC 54 Assignments	MAJ James F. Gibson	221-0318	325-0318
Asst, 54 Assignments	Mrs. Margaret Mixon	221-0317	325-0317
MAJ SC 11 Assignments	MAJ Ted C. Chilcote	221-0207	325-0207
MAJ Other Special Assignments	MAJ Russell S. Thompson	221-0208	325-0208
Asst, MAJ Assignments	Mrs. Jeanne M. Howard	221-0207	325-0207
CPT SC 11, CONUS and Nominative Assignments	MAJ David M. Crittenden	221-0209	325-0209
CPT SC 11, OS and IOAC Advance Assignments	MAJ Terry J. Young	221-7823	325-7823
CPT, Other Specialty Assignments	CPT Ronald D. Thompson	221-0209	325-0209
Asst, CPT Assignments	Mrs. Lillian P. Harris	221-0209	325-0209
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**Homebasing** — This term conveys dual goals: All units in the regimental system will have a CONUS homebase that will also be the permanent location of the regiment. A corollary intent is to provide career soldiers a CONUS homebase to which they will be assigned whenever possible.

**Regimental affiliation** — The continuous association or identification of a soldier with a regiment, unit, or institution throughout his career.

**Regiment** — A regiment consists of one or more like battalions, sequentially numbered, designated numerically based on the historical lineage of American units, and having an established homebase in CONUS. As used in this plan, the term does not refer to tactical headquarters or tactical units currently designated as regiments (armored cavalry regiments, for example).

The concept integrates all manning functions, policies, procedures, and regulations as modified to stabilize soldiers together in units and to rotate these trained units from CONUS homebases to overseas areas and back while still providing for the professional development of each soldier. Units and soldiers will be linked together through the bonds of regimental heritage, traditions, colors, and homebase.

A fundamental prerequisite for implementing such a concept is organizational stabilization and interchangeability of units. The current rate of change in the force structure process must be slowed, and the manpower allocation function must be disciplined and standardized. Assignments into and out of regimental units will be restricted to fixed "assignment windows" that are synchronized with unit rotation schedules. This system will be supplemented by an individual replacement system.

The unit rotation system will focus initially on the CONUS to overseas rotation of stabilized, trained combat arms units (with the ultimate goal of rotating battalions). The system will be extended to all types of units when

and where replacement and rotation is feasible. Initially, combat arms units in CONUS, standardized by MTOE and level of personnel fill will be matched with like overseas units and rotated on a fixed schedule. Pre-deployment training oriented to the mission and area of deployment will ensure maximum combat effectiveness.

The manning system will be capable of supporting unit rotation or replacement and individual replacement during peacetime. It must make the transition smoothly to a predominantly unit deployment mode at mobilization, and it must revert to the dual capability system to sustain wartime requirements.

An essential ingredient of the concept is homebasing regiments at CONUS installations to which units would return upon completion of overseas tours.

The regimental concept seeks to provide a soldier continuous identification with a single regiment, institution, or location throughout his career. To the extent possible, the soldier will spend company or battalion level assignments in the regiment, either in CONUS or overseas. He will alternate tours in non-regimental TDA assignments as necessary. Through repeated assignments to the same regimental units and locations, the soldier will experience recurring identification with a relatively small circle of peers and leaders.

Transition to the new manning system may generate some turbulence in the beginning. All initiatives must be assessed and implemented with a view toward attaining the overall objectives with a minimum amount of disruption in the Army. Implementation will be phased so as to build on previous experience and to ensure an orderly transition.

In general, unit rotation, homebasing and regimental identification will begin with combat arms companies, then extend to combat arms battalions. When the manning system is institutionalized to support the rotation of combat arms battalions in a steady state, all other elements of the

Army will be integrated where it is feasible.

## OFFICIAL PHOTOGRAPHS

Reports from various promotion boards indicate that there is still a problem with outdated photographs in Official Military Personnel Files (OMPFs) or with photos missing entirely.

Photographs are a significant element of an officer's OMPF and are of particular interest to DA selection boards and career management activities. Individual officers and their military personnel officers must ensure that initial photographs and periodic updates are accomplished and forwarded to DA when they are due to make sure the OMPFs are properly constituted.

Photographs are due on the following schedule:

RANK	PHOTO DUE
GO, COL	Every 3 years
LTC, MAJ, CPT,	
1LT, CW4-CW2	Every 4 years
1LT, CW2	Within 60 days of promotion

## 30-DAY RULE

Some officers who are alerted for a reassignment that involves an active duty service obligation do not understand the "30-day rule" regarding resignation and release from active duty.

All officers who have been officially alerted for an assignment that involves an active duty service obligation, and who do not wish to incur that obligation, must submit a separation request within 30 days of the official alert. An officer's failure to request separation implies his consent to the assignment, and the associated service obligation is incurred.

Any one of the following actions constitutes an official alert:

- A firm where/when assignment notification from a MILPERCEN career manager to an officer during an interview.

- A telephone call from a MILPERCEN career manager to an officer with a firm where/when assignment notification, documented in his Career Management Individual File (CMIF).

- Written correspondence from MILPERCEN indicating a firm where/when assignment.

- Receipt of a copy of the request for orders generated by MILPERCEN.

Reserve Component officers who are serving on active duty may request release from active duty under the provisions of AR 635-100, Personnel Separations, in lieu of compliance with assignment orders. To be considered, such requests must be received by the commander having general court-martial jurisdiction within 30 days of official alert.

Regular Army officers may submit an unqualified resignation under the provisions of AR 635-120 Officer Resignations and Discharges, in lieu of

compliance with assignment orders. To be considered, resignations must be submitted to HQDA within 30 days of official alert.

In the above cases, the requested date of resignation normally cannot be more than six months later than the date of application. As an exception, an officer who has a service obligation beyond six months may submit his application for separation more than six months in advance of his requested release date. A request for withdrawal or change to the effective date of separation that is submitted in lieu of compliance with orders will be considered only for extreme compassionate reasons or for the definitely established convenience of the service.

Requests for voluntary retirement in lieu of compliance with orders will not be considered if they are not submitted to HQDA within 30 days of official alert.

This policy also applies to officer

advanced course attendance and to the Officer Advanced Course Advanced Assignment (OACAA) Program, where an officer receives two consecutive service-obligating alerts before leaving his original duty station. Each of these assignment actions is administered separately, and to decline either the officer must submit a written separation request within 30 days of his alert notification.

If the officer fails to comply with the "30-day rule," he will be required to comply with orders to a course of instruction, an overseas station, or reassignment within CONUS, and to fulfill the active duty service obligation that results from the reassignment before he is allowed to voluntarily separate from active duty. This policy does not apply to officers who are selected for command and staff schooling, senior service college schooling, or senior warrant officer courses.

## RESERVE COMPONENT NOTES

### WOPD PROGRAM

There has been a lot of discussion in recent months in all branches of the armed services on how to upgrade the proficiency of personnel and how to retain these highly trained and valuable members.

Toward this end, the Army National Guard has established the Warrant Officer Professional Development (WOPD) Program, which will make educational requirements mandatory for the promotion and retention of all warrant officers in the Army National Guard (ARNG).

In the past, ARNG warrant officers were only required to accumulate the

appropriate time in grade to be eligible for promotion. Those who bettered their education through prescribed courses were not given priority for promotion over those who did not.

To be eligible for promotion under the new program, a warrant officer must have completed the required minimum time in grade and either the resident or the non-resident educational requirements necessary for promotion in the particular area of expertise.

The levels of education required for promotion are: Basic course — W1 to W2; Advanced course — W2 to W3; Senior course — W3 to W4. W4s

are required to complete 25 hours or more of related training, application, or self-improvement every two years (active duty training, full-time training duty, subcourses, college courses, or instructor) until they reach retirement.

The WOPD program went into effect in July 1980 and will be included in a complete revision of National Guard Regulation 600-101 and National Guard Bureau Pamphlet 600-2, which will be available soon. The program is expected to result in significant advancements for the ARNG in terms of training, quality of personnel, and recruiting and retention incentives.





# BOOK REVIEWS



Once again we call your attention to the various publications produced or distributed by the International Graphics Corporation (218 Beech Street, Bennington, Vermont 05201). IGC distributes the well-regarded magazine, *WAR MONTHLY*, a British publication, and produces a number of its own publications, including *WORLD WAR II JOURNAL*, *ARMORED FIGHTING VEHICLES JOURNAL*, *MILITARY JOURNAL*, and *VIETNAM JOURNAL*.

Information about these publications can be obtained from IGC at the address mentioned above.

On a number of occasions, our readers have asked us where they might procure certain military books that are now out of print. Here are the names and addresses of several reputable used military book dealers:

- **THE MILITARY BOOKMAN**, 29 East 93d Street, New York, New York 10028.

- **LEROY THOMPSON**, 3471 Highway A, Festus, Missouri 63028.

- **ARTICLES OF WAR, LIMITED**, 7101 N. Ashland Avenue, Chicago, Illinois 60626.

- **ANTHONY MAITA**, Military Books, 813 Greenwood Road, Glenview, Illinois 60025.

- **FAIRFIELD BOOK COMPANY**, Box 289, Brookfield Center, Connecticut 06805.

These dealers will be happy to answer your queries and send you their catalogs.

We also want to call your attention to some of the more interesting and useful reference and reference-type books we have received in recent months:

- **THE ARMIES OF THE WARSAW PACT NATIONS**. By Friedrich Wiener. Third Revised and Updated

**English Language Edition. Revised and Edited by Franz Kosar and Franz Gruber** (Vienna: Carl Ueberreuter Publishers, 1981. 384 Pages.) The best publication of its kind on the market today. It not only contains detailed discussions of organizations and weapons, it also contains a section on the Soviet concept of power and command and battle principles.

- **MISSILES OF THE WORLD**. By Michael J. H. Taylor. Third Edition (Charles Scribner's Sons, 1980. 152 Pages. \$14.95). A handy, compact reference book that contains much useful information about the various kinds of missiles — from the smallest to the largest — used by military services throughout the world.

- **ARTILLERY OF THE WORLD**. By Christopher F. Foss. Third Edition (Charles Scribner's Sons, 1981. 176 Pages. \$17.50). Another handy, compact reference work, this one with up-to-date information on field artillery weapons, anti-aircraft artillery, multiple rocket launchers, mortars, recoilless rifles, and their associated fire control systems. The information is arranged by types of weapons and by country.

- **COUNTRIES OF THE WORLD AND THEIR LEADERS YEAR-BOOK**, 1981 (Gale Research Company, 1981. 1,289 Pages). Combines a number of United States Government publications — most notably the State Department's "Background Notes on Countries of the World" and "Status of the World's Nations" — into one, easy-to-use, comprehensive reference book. Includes information on 168 countries.

- **FIELD ARTILLERY BATTALIONS OF THE U.S. ARMY**. Two Volumes. Compiled and Edited by James Sawicki (Wyvern Publications, PO Box 188, Dumfries, Virginia 22026,

1977 and 1978. Each volume, \$24.95; two-volume set, \$34.95). An outstanding reference work, a true labor of love. The author concentrates on the Army's separate artillery battalions, not on its artillery regiments. Most of these units have long since disappeared from the Army's rolls, but the author doesn't want them to be forgotten. He plans to produce in the near future a similar volume on Infantry regiments.

- **HISTORY OF MODERN U.S. MILITARY SMALL ARMS AMMUNITION, VOLUME II: 1940-1945**. By F.W. Hackley, W.H. Woodin, and E.L. Scranton (The Gun Room Press, 1978. 297 Pages), and **MILITARY SMALL ARMS AMMUNITION OF THE WORLD, 1945-1980**. By P. Labbett (Presidio Press, 1980. 128 Pages. \$18.95). Both of these are excellent reference works on small arms ammunition. The first contains detailed information on the billions of rounds of small arms ammunition — caliber .60 is used as the cutoff — produced in the U.S. between 1940 and 1945. The other takes a more general approach and discusses such items as individual cartridge profiles, color identification codes, and packaging.

- **U.S. MILITARY SHOULDER PATCHES OF THE UNITED STATES ARMED FORCES**. Third Edition. Compiled and Edited by Jack Britton and George Washington, Jr. (1981. 76 Pages. \$12.95, Softbound); **UNIFORM INSIGNIA OF THE UNITED STATES MILITARY FORCES**. Compiled and Edited by Jack Britton (1980. 59 Pages. \$6.50, Softbound); **COMMUNIST MILITARIA OF THE VIETNAM WAR**. Revised Edition. By Darrel R. Luling (1981. 50 Pages. \$6.50, Softbound). All three of these publications have



been produced by the M.C.N. Press (PO Box 7582, Tulsa, Oklahoma 74105) and should be considered a must-have by all military collectors. They also contain other useful information that all military professionals can use.

Here are a number of our longer reviews:

**THE WAR BETWEEN THE GENERALS.** By David Irving (Congdon and Lattès, 1981. 446 Pages. \$17.95). Reviewed by Albert N. Garland.

It is difficult to describe this book. The author, a British historian with a sizable list of books to his credit, seems intent on making two major points: Attacking the morals, professionalism, and military abilities of such American generals as Dwight Eisenhower, Omar Bradley, Walter B. Smith, Courtney Hodges, George Patton, Carl Spaatz, and J.C.H. Lee; and defending the British military leaders, particularly Bernard Montgomery, and their supposedly superior manner of conducting war.

His is a cry that has been regularly repeated by many British historians in recent years. All seem to preach the same gospel: "If the Americans had only listened to Montgomery, the war in Europe would have been won in 1944 and there would have been fewer losses in men and materiel."

To make his first point, Irving draws heavily from a diary maintained by Major General Everett S. Hughes, one of Eisenhower's inner circle and a West Point classmate of George Patton. Hughes apparently drank a lot, loved to jot down gossip items, thrived on illicit sex (as practiced by himself and by others), and for most of the time he spent in Europe thoroughly enjoyed himself doing all sorts of odd jobs for the supreme Allied commander. Irving also uses numerous entries from Patton's diaries, particularly those that criticize other U.S. commanders.

For his second point, Irving seems to draw on Montgomery's postwar memoirs, making claims for the British leader that not even the official British history of the Normandy

campaign makes. It seems that Irving operates on the theory that if he can paint the American generals in the darkest personal colors, then the British leader can be made to positively glow.

I would not recommend this book for serious study. I do suggest that as many U.S. soldiers as possible should read it, if for no other reason than to get some idea of what many British writers are doing to revise the history of World War II in northwest Europe.

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**THE LAST DAYS OF PATTON.** By Ladislav Farago (McGraw-Hill Book Company, 1981. 319 pages. \$12.95). Reviewed by Lieutenant Colonel Samuel B. Jones, Jr., United States Army Reserve.

Years ago, as a young Armor lieutenant fresh out of Fort Knox and imbued with armor tradition, I was aware that General George S. Patton's death resulted from an auto accident near Mannheim, Germany, where I was stationed at the time. But there was little information readily available that gave any details of the accident or provided an insight into the life of George Patton following VE Day. In this book, Patton's biographer, Ladislav Farago, has attempted to outline the events of the period and to research the details surrounding the accident. Never properly investigated, the tragic accidental death of General Patton has become clouded by controversy and exploited by charges of conspiracy.

Farago briefly sketches Patton's background, traces his role as commander of the Third Army during the collapse of Nazi Germany's military machine, and describes the confusion surrounding those hectic days in 1945 when the forces of West and East drew together in Czechoslovakia. Once the war in Europe had been won, Patton was assigned the task of governing Bavaria — a task for which he was ill-suited.

Farago outlines the series of events that resulted in the General's eventual assignment to command the Fif-

teenth Army. This assignment, Patton's last, was to oversee the preparations for the writing of the history of the American crusade which had begun in Normandy and had ended in Czechoslovakia. Patton died, prostrate on a hospital bed, eleven days and six hours after the auto accident that had occurred on his way home from a pheasant hunt.

Farago himself died before he could complete his book, and the final editing was done by his son, John M. Farago. Ladislav Farago successfully provides a carefully researched rebuttal for the conspiracy theory and clarifies the cause of death, but in other places his book seems rather shallow. Perhaps if he had lived his book would have been of his usual high quality. I recommend it to Patton buffs and old armor types, but not to everyone.

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**NEITHER ATHENS NOR SPARTA? THE AMERICAN SERVICE ACADEMIES IN TRANSITION.** By John P. Lovell (Indiana University Press, 1979. 362 Pages. \$17.50). Reviewed by Rear Admiral George L. Phillips, United States Navy, Retired.

A critical study of this overlong and patently biased work brings to mind the pithy warning of the Roman Plautus (B.C. 254-184): "The valiant profit more their country than the finest cleverest speakers." To which might well be added the Scriptural warning: "If the trumpets give forth an uncertain sound, who will prepare himself for battle?"

In this book, each of the service academies comes under caustic scrutiny, the justice of which may be questioned by those whose lives are dedicated to, or have been spent in, honorable service to the Republic.

The basic mission of the service academies traditionally has been directed to the development of professionally competent gentlemen who are capable of assuming responsibility and demonstrating leadership all the way, if necessary, to self sacrifice in defense of the nation, and who will



represent the nation with honor and distinction. This is all Spartan. To provide the technical knowledge to accomplish this ideal, an element of Athenian education is needed — mathematics, science, languages, and logic — and other tools needed to form sound judgments and decisions. There is no argument here.

Sadly, the mission of the academies has become blurred through shifting social trends, erosion by civilian interference, and the imposition of liberal ideology by outside influences in opposition to the ideals of West Point's "duty, honor, country" and Annapolis's "fidelity and obedience" and "from knowledge, power."

Consider now Lovell's account of the laicization of Annapolis with a civilian dean and the order that, except for naval science, all officers on the faculty be replaced with civilian instructors. Similar action in the other academies sounded the same uncertain trumpet, as the clever speakers dwelt on humanities, scenarios, policy arenas, cautious incrementation, and task environments (whatever these may mean) while the policies, customs, and routines came under bombardment by civil libertarians, the civilian boards of visitors, the American Association of University Professors, the General Accounting Office, Rickover, unadjusted graduates, curriculum review boards, the Middle States Association of Colleges, and apparently anyone else who felt like taking a shot.

The Superintendents are to be pitied in their harassment. The attrition rate comes under fire, although this is a result of the inexorable means of weeding out of the mass of political appointees the non-dedicated, the uncertain, the misfits, the ones who were "going to try it for a while," and those unable to keep up with their studies. From time immemorial, a 40 percent attrition rate has been par. If you want good officers, you want the best available; you must weed out the weak and continue to train the remainder for the ultimate test of battle. What else is the mission

of the Defense Department? Is the enemy to be cowed by scenarios and humanities?

Too much hot air is generated in the present atmosphere of hostility toward and criticism of our service institutions. They have served us well in our hour of need, as a visit to the cemeteries at Arlington, West Point, and Annapolis will prove. Rather than Athens and Sparta as yardsticks, it is better to reflect on Gettysburg, Vicksburg, Santiago, Belleau Wood, Pearl Harbor, and Okinawa to fully realize and appreciate the contributions that have been made by the service academies.

This overlong and somewhat vapid book is authored by a recent graduate of West Point who served three years in peacetime before resigning. It proves little except one man's thinking, but it does indeed sound the uncertain trumpet. One can wonder what would be the reactions of MacArthur, Ernie King, Patton, Stilwell, Mick Carney, and Pershing to such matters as "appreciation of the fine arts" and the rest of the permissive schemes, as well as civilian clothes for off-duty upperclassmen and summoning aid from an outside source to get out of going to chapel.

Make no mistake: the trumpets are giving forth an uncertain sound. Can we in these circumstances really prepare ourselves for battle? This piece of work might well be retitled, "Neither Smith nor Bryn Mawr."

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**SELF DESTRUCTION: THE DISINTEGRATION AND DECAY OF THE UNITED STATES ARMY DURING THE VIETNAM ERA.** By *Cincinnatus* (W. W. Norton and Company, 1981. 288 Pages. \$15.95).

**EVERYTHING WE HAD: AN ORAL HISTORY OF THE VIETNAM WAR BY THIRTY-THREE SOLDIERS WHO FOUGHT IT.** By Al Santoli (Random House, 1981. 265 Pages. \$12.95). Both books reviewed by Lieutenant Colonel R. J. Rinaldo, Fort Eustis, Virginia.

What a contrast there is between these two books. They deal with the

same war and, in many respects, cover similar aspects of that war. Yet, with few exceptions, *Everything* rings of truth while one comes away from *Self-Destruction* bitter, bored, and feeling bad.

Perhaps its because *Self-Destruction* covers ground that has been covered thoroughly before in the same maledictive way — by Loory, King, Herbert, and, of course, the War College professionalism study. No wonder then that *Cincinnatus* can say: "In the last decade there have been a pride of authors who have commented, some with clarity, on problems within the Army . . . The Army's most visible response has been a quiet yawn." What did he expect when criticism becomes a limitless litany of stale, repetitious bad mouthing and grouching?

Business must go on as usual. The Army needs to be trained, equipped, and readied for another battle on another day. We just cannot afford to take seriously what looks like someone's expansion of a doctoral dissertation, particularly when so much of it is disputed by the facts.

There is just too much that is arguable and flaccid in this book. The author claims that the war was mainly an Army show and that the air war had no strategic value. He avoids the thrust of so many, even NVA commentators, that the air war had North Vietnam on the ropes, when we lost our nerve and stopped the bombing.

*Cincinnatus* also claims that the air war did not contribute tactically to military success. Anyone who is alive today because of tactical air support — and there are probably more than a few of us — would certainly disagree with that.

*Cincinnatus* wants to show us that "skilled and toughened" guerrilla-type fighters can be developed. His example: Merrill's Marauders. But he obviously has not read Charlton Ogburn's book, *The Marauders*. Ogburn, a member of that famed group, writes that "I had a job I had no training for and had no competence in." The lesson Ogburn learned was this:

"Being unready and ill-equipped is what you have to expect in life. It is the universal predicament. It is your lot as a human being to lack what it takes. Circumstances are seldom right. You never have the capacities, the strength, the wisdom, the virtue you ought to have. You must always make do with less than you need in a situation vastly different from what you would have chosen as appropriate for your special endowments."

A reviewer perhaps should not get personal. But I have a picture of myself taken in March 1969 in Tien Phuoc, Vietnam. On the picture frame I had written Ogburn's words. For actions during that month members of my company received two Distinguished Service Crosses, a Medal of Honor, and plenty of Purple Hearts. All of the company officers who were involved received Purple Hearts. None of us were really up to those actions. We just moved out and tried to do the best we could under the circumstances. In my view, this is just about what the entire United States Army did in Vietnam, from General Westmoreland on down.

Enough. This book is filled with misleading, uninformed, shallow, and irresponsible material.

This is not to say that the Army's record in Vietnam was unblemished. Some of what happened was inexcusable. But the truth of the war, its complexities and nuances, its tone and texture, is more clearly drawn in a book like *Everything*.

There are some real war stories in this book. One's imagination is strained by some of them, and I have even seen one of them touted as being an expression of the whole war. Unfortunately, it was the only one in the book I could not believe.

But most of this oral history is credible, a credit to Santoli's ear and the sincerity of those being interviewed. Concerning treatment of the Vietnamese people, David Ross, a medic with the 1st Infantry Division, tells how a track ripped through a farmer's field — "all his stocks and bonds and his future . . . and his dreams he hoped for his kids. . . ." Later, his

unit helped a fisherman. "It seemed like we'd do something nasty," Ross says, "and then we'd try to do something nice."

Robert Rawls, a black rifleman in the 1st Cavalry Division, on race relations: "But for the guys in the bush, the grunts, you know, one of my best friends was a white guy . . . Out in the bush everybody was the same. You can't find no racism in the bush. We slept together. We ate together, fought together. What else can you ask for?"

Even the disputable yarns have some germs of truth. We simply need more of this kind of treatment of the war — the soldier's story. We owe it to history, the guardian of truth, to put the Vietnam War in perspective. We owe it also to the younger generation. You can see it now — the curiosity. Those who may bear the major burden of fighting our next war want to know about the last one.

Let them come away knowing what Robert Rawls knows. He ended his interview by saying, "Only thing I can say now is: Have mercy on the younger generation."

(EDITOR'S NOTE). *Since Colonel Rinaldo prepared his review of Self-Destruction, the author has been identified as Dr. Cecil B. Curry, a professor of history at the University of South Florida in Tampa. Dr. Curry is a chaplain in the Army Reserve and, as a Lieutenant Colonel, is assigned to the Chief of Chaplain's office as a mobilization designee in an inactive duty status. He never served in Vietnam.*

**GIVING UP THE GUN: JAPAN'S REVERSION TO THE SWORD, 1543-1879** By Noel Perrin (David R. Godine, Publisher, 1979. 122 Pages. \$8.95).

Although several recent television series alluded to the fact, many Westerners find it difficult to believe that a feudal society of the kind found in Japan in the 16th and 17th centuries actually produced guns of all kinds that were superior to their own military forces of the same period.

The author is a professor of English at Dartmouth College. He has a fine way with words and this book is a delight to read. His story is a simple one: guns first reached Japan in 1543, brought by three Portuguese adventurers who were sailing on a Chinese ship; the local *daimyo* soon bought them and had them copied by his chief swordsmith; within the next decade they were being made all over Japan; in 1575, guns proved decisive in one of the great battles of Japanese history; by the turn of the century, Japan was exporting firearms to Europe; and, finally, under the Tokugawa regime, firearms were banished.

Why? The author is not completely certain but believes it resulted from a series of government edicts that first consolidated all of Japan's gunmaking facilities and then cut back on their production. It was this apparent lack of interest on the part of the central government that doomed the firearm in Japan, at least for several hundred years.

The accompanying illustrations add much to the narrative's force. Well documented, well illustrated, just a bit on the preachy side, this is a book worth reading.

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#### RECENT AND RECOMMENDED

**CANNON FODDER: AN INFANTRYMAN'S LIFE ON THE WESTERN FRONT, 1914-1918.** By A. Stuart Dolden. Sterling Publishing Company, 1981. 185 Pages. \$12.95.

**AN ILLUSTRATED GUIDE TO ALLIED FIGHTERS OF WORLD WAR II.** By Bill Gunston. A Salamander Book. Arco Publishing, 1981. 160 Pages. \$8.95.

**FROM JACKSON TO JAPAN: THE HISTORY OF COMPANY C, 307th INFANTRY, 77th DIVISION, IN WORLD WAR II.** By Henry D. Lopez. Published and distributed by the author, 1977. 247 Pages. \$8.95.

**FIRST HITCH USMC.** By Mac Klein. Carlton Press, 1981. 127 Pages. \$6.95. (Primarily for our Marine Corps readers.)

**OUT OF THE SKY: A HISTORY OF AIRBORNE WARFARE.** By Michael Hickey. Charles Scribner's Sons, 1979. 286 Pages. \$14.95.

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# INFANTRY LETTERS



## TICKET PUNCHING

Dear Sir,

I have read with interest Branch Chief Colonel Griffin's comments concerning education (INFANTRY, November-December 1980, page 51) and also Major Rinaldo's attack on his stand (March-April 1981, page 58). Being a high school dropout, an officer, and a private businessman, I feel a bit of a call to talk about soldiering. (I do have a degree in Social Science from Florida State University, done completely during after-duty hours, and some credits toward an MBA.)

All the formal education in the world doesn't do you a bit of good when the bullets are flying, when you're planning the operation, or when you're closing the sale.

What you have to know is the subject at hand, and you need to know that well. The whole-man concept may be great on paper, but it can be deadly on the battlefield or at a corporate headquarters. Contrary to popular belief, the best place to learn is not in the classroom; it's out in the field. If you want to know about the men you've hired, go talk to them and observe their performance. And if you want proficient soldiers, practice, practice, practice.

After 42 months of company command and a couple of young officers to work with, I think the thing that scared me most was this blind need to get an advanced degree. As a battalion executive officer I knew lieutenants with almost no job knowledge who exhibited more interest in discussing their planned master's degree than in improving their units' performance or their own. These were young career men and women mapping out that guaranteed shot at an

eagle (or maybe even a star), or more sickening, just trying to make sure they made RA major for retirement purposes.

This is not to say that an advanced formal education is bad. It is outstanding if you also fully grasp everything you should know about being the best soldier you can be. If you are assigned away from troops, are solidly based in your career field, and perhaps facing an assignment that requires advanced knowledge, you should go after it the same way you'd attack any other objective.

Another bone of contention for me is the colleges that are set up on the post or base to offer a master's degree. This is usually a pay as you go affair; the colleges are there to receive the revenue, and the people who attend are punching their tickets. The master's degree will be good for promotion and all they have to do is attend an occasional class. That's phony as hell and yet we accept it. I guess it fits in with our old OER mentality.

A lot of people believe strongly that formal education counts for more than experience does. I am reminded of an argument I had with a young Army nurse about how people react to being wounded. She tried to clinch her point of view by saying, "You can't tell me that; I have five years of education." I replied, "Yes, but I have two and a half years of experience; besides, I've been wounded." She couldn't see where that counted for much.

Reading does not have to be formalized as part of a course of study. We should read on our own and on a variety of subjects just for job knowledge.

But as I sit here looking at my shelves full of manuals, I wonder.

Am I really ready to lead that charge, orchestrate that defense, plan that jump, coordinate that firepower? Ultimately, if we are to be professional soldiers we must soldier first, last, and always. That requires dedication to the requirements of our position. It engenders a willingness to sacrifice personal wants for the good of the unit.

I therefore applaud Colonel Griffin's stand. Let's get away from ticket punching, education for a good file, and placing our own personal welfare above that of the troops or the Army. Most of us came in the service to be soldiers, not for a good job or status or early retirement. Most of us stay in because we love soldiering, PT, long hours, airborne, mechanized infantry, tanks, Ranger, Special Forces, dirt, combat, and troops, always the troops. Whether planning operations, moving a unit, or trying to outfox the other guy or the exercise writer, this unit can do it and we're gonna prove it!

BRUCE R. PORTER  
MAJ, Infantry  
Hill Air Force Base, Utah

## PLATOON PROBLEMS

Dear Sir,

My son (Lieutenant Charles T. Simpson) is the platoon leader of an air assault infantry platoon in the 101st Airborne Division. When he was home for Christmas I questioned him about the capabilities and limitations of his platoon and asked him what he would change if he had the authority.

After he went back to duty and thought about it a bit, he did find that there were some things he would

change. (He likes his job very much and was not bitching — just replying to my questions.) It occurs to me that there may be other platoon leaders out there who detect faults and problems, but no one asks their opinion.

The following is an excerpt from his reply:

The thing we need most is a squad automatic weapon. It should be a 5.56, weigh less than 12 pounds and fire from a belt or a magazine. It should also have a quick-change barrel and be capable of sustained fire of 100 rounds per minute. The SAW should be accurate at ranges of 500-700 meters with a tripod. It needs to be more durable than the M16.

The M203 is a great weapon, but it needs to be better built. The barrel has a plastic hand grip that cracks off because of temperature changes (cold weather). The M16 works well under ordinary circumstances but jams quickly when dirt or sand gets into it. The M60 is a good weapon for platoon-level work, and lacking a new SAW I'd like to have three more of them in the platoon. They are really a bit too heavy, but that can be tolerated because of their fire power.

The new LAW (VIPER) hasn't made its appearance yet and I'm not sure how much of an improvement it will be over the present LAW. Of course, the present one is not an effective weapon. (The average firer gets 50 percent hits with stationary targets at less than 200 meters and less than that with moving targets, which is totally inadequate considering the risk the firer takes just to shoot at those short ranges.) The Dragon is a pretty good weapon, but is hard to track because of instability, and it is only useful in daylight in open areas. The 101st, of course, doesn't have any armor, so there is no gun back-up for the guided missiles, which is disquieting.

As for equipment, we need better communications equipment. The squad radios are too short-ranged, very unreliable, and awkward to use. We need a radio that can reach five kilometers and one that works at least most of the time; it should be one unit with the mike and ear piece mounted on the helmet. With a five-kilometer range, it would also need to have a range reduction switch such as the one on the current radio. The PRC-77 is a fine radio and is good for platoon to company communications, but it is too heavy for squad use.

The TA-50, the new entrenching tool, while more convenient, breaks much too easily at the joint between the blade and the handle and should be corrected. The snaps on the load-bearing equipment also break too easily. The new poncho

(ripstop nylon) is nice and light, but the waterproofing separates from the fabric in a very short time. The ripstop is plenty strong; it is just the bonding of the plastic waterproofing that doesn't hold up.

As for organization, we need one more staff sergeant in the platoon for a weapons squad or platoon headquarters. As it stands now we have three squads of eleven men each and a headquarters of nine men. The headquarters consists of the platoon leader, platoon sergeant, radio operator, and two machine gun teams of three men each, but no NCO for the weapons. This causes problems by leaving six machine gunners and the radio-telephone operator without a squad leader. Usually the personnel in the platoon headquarters are placed in the line squads, which hurts morale and training in garrison. The old concept of a weapons squad was a sound one and we should go back to it.

It will be interesting to see who among your readers agree or disagree with this assessment.

CHARLES M. SIMPSON III  
Annandale, Virginia

## IDEA

Dear Sir,

We need improved close-range infantry firepower against armor. To get it right away, we can take the M202 "Flash" quadruple 66mm incendiary rocket launcher and load four LAW rounds into it. Presto! We have a disposable 25-pound weapon that makes single-shot unguided AT launchers as obsolete as the trapdoor Springfield. Our current light AT weapons require the user to get a one-shot kill on pain of death, and they are awkward, to say the least, against multiple targets. With the proposed quadruple launcher, a soldier could hit a T72 with four quick and fairly heavy blows, or take out three BMPs in rapid succession after a first-round miss. Nothing in the present armory provides this capability.

As far as I can tell, the proposed weapon could be assembled entirely from parts already in the inventory. The "Flash" is built to take LAW rocket motors. An improved LAW

sight has been developed and should be installed. We could get a lot fancier with this multiple shoulder-fired launcher idea (Viper warheads, say, or a built-in spotting round to eliminate that first-shot miss — the spotting round is also already in the inventory). But since we're in a hurry, why not just assemble the thing and go? The training has already been done. Four fast HEAT rounds at 75 meters, multiplied by a platoon, would be very effective in urban terrain.

WILLIAM BEFORT  
Moscow, Idaho

## RGs HELPING RCs

Dear Sir,

The essential responsibility of every Readiness Group is to help the reserve components improve their combat readiness. But sometimes when RG advisors arrive on the job they have difficulty adjusting to their new environment. They know how the systems work in the active army and they understand the active duty vocabulary. But they don't understand the differences that exist between them and the part-time soldiers who make up the reserve components.

The job is easier when the RG-RC dialogue is based on mutual acceptance, respect, trust, and confidence. As an advisor for the past three years, I believe that advisors must cultivate personal relationships with their counterparts to help overcome their communications difficulties.

Too often, advisors are impatient, jumping on problems before they have had time to get to know the unit, its personalities, and its operating environment. It is even more important for the people in the units to get to know the advisor.

When advisors have not had time to prove themselves, their advice is often ignored; the units perceive these offerings as emanating from sources that may not have their best interests at heart — fifth columnists



who tattle to superiors or meddlers who should mind their own business.

Reservists and National Guardsmen often see their active duty advisors as being insensitive. One commander observed, "If the advisor wants me to do what he just suggested, he doesn't understand our situation. I have too many civilian job commitments to have time for that."

Understanding the parttimer's peculiar personal priorities is especially difficult for advisors. Essentially, the military role of the RC soldier consumes a small percentage of his time and provides such an insignificant portion of his income that his family, his civilian employment, and his personal pursuits become more important than military service. One NCO told me, "If I lose my civilian job, my family goes hungry. Therefore, I do it first."

Because the RC commander and his troops see each other only two days each month, they must make the most of the time they have. The commander must accomplish in 38 days what the active commander has all year to do. Packing SQT, ARTEP, AGI, normal personnel and administrative business, plus a two-week field problem into 38 days is no small accomplishment.

Once the advisor understands the RC environment, he must analyze the units to determine where the centers of influence are. The chain of command is the most obvious answer and it is correct in most cases. But sometimes an infrastructure exists that supplements the chain.

Determining who is important is not difficult, but it takes time and exposure to the unit. The advisor should look for technicians and unit members who, because of lighter civilian job commitments, prior service, interest, or talents, actually do the work that others are supposed to do. There is also sometimes a "good old boys" network. These are unit members who have influence disproportionate to their grades and positions resulting from family connections, friendships, or status in the community. The chain of command

must always be respected, but on occasion the seed of an idea may find fertile ground in less obvious places.

After the influential people have been identified, personal relationships must be developed. The key elements are mutual respect, trust, and confidence — traits that are best cultivated between people who know each other well. Advisors who roll up their sleeves and guide their counterparts through problems can't help fostering these traits.

Advisors who take time to develop solid relationships generally find their advice accepted with confidence and respect. Those who don't or who are selfish in taking credit accomplish comparatively less. In developing these relationships, the advisor should take care to ensure that the relationships are forthright and respectful of the trust and confidence cultivated. If they are, the rewards are manifold.

JAMES L. FETIG  
MAJ, Infantry  
Fort Irwin, California

#### MILITARY WRITERS

Dear Sir,

I am just starting to edit an encyclopedia that the publisher and I hope will constitute the definitive source of information on all aspects of things military. The project will take 12 years or so to complete and will consist of at least 50 volumes.

The key to a successful encyclopedia is the quality of its entries, and that means the expertness of its contributors. To finish this project, I will need a veritable army of volunteer contributors. My idea is to find experts to write on topics about which they need do no additional research. Among the early topics, for example, will be airborne, airmobile, armor, and artillery, each of which will include several entries.

The publisher and I particularly want to emphasize the relationships between military and economic, social, cultural, and political affairs. We

plan to emphasize the events of the 20th century.

Although we cannot offer honorariums in a project of this size, each contributor's name will be listed on his article as well as in the front of the volume. This should be an excellent way for military writers to place their professional knowledge before a world-wide audience.

Volunteer contributors, or anyone who can recommend others as possible contributors, may write to me at P.O. Box 1109, Springfield, Virginia 22151.

JOHN SLOAN

#### TRIPLE CIB HOLDERS

Dear Sir,

Your assistance is requested in compiling a comprehensive list of infantrymen who have been awarded the Combat Infantryman Badge three times. A roster of these triple CIB holders will be presented to the Infantry Museum at Fort Benning, Georgia, as a roll of honor.

Any infantryman who holds the Combat Infantryman Badge (CIB) with two stars is asked to send his name and grade in which retired, together with a copy of the order for each award, to me at 525 Southwick Drive, Fayetteville, NC 28303. If the orders are not available, the designation of the unit with which he was serving when each CIB was earned and the approximate dates in combat should be provided.

Please notify anyone you know who holds the triple CIB and ask them to send me the necessary information.

DONALD A. SEIBERT  
COL, U.S. Army Retired

#### TI AND COMBAT ARMS

Dear Sir,

Thanks for publishing my article on technical intelligence (INFANTRY, May-June 1981, pages 17-18).

I was told several years ago that most technical intelligence people are opinionated and nit-pickers. My observation is that TI people are trained to look for small, seemingly insignificant details while most combat arms officers tend to look at the big picture and leave the small details to others. I spend a lot of time thinking of ways to get the concepts of TI across to combat arms units without getting into classified material.

After reading several of the more recent articles and letters you have published about possible new items of equipment, I would like to put forth the following for someone to evaluate.

In World War II the Germans had a mini-tank (the Goliath) that was remote-controlled and contained a demolition charge. Why not consider making a small remote-controlled mini-tank with an antitank missile mounted on it? The gunner could be 10 feet underground and watch the tank's progress on TV and fire the missile when the target was in range. The worst case would result in the loss of the missile and the tank. The best case would be the destruction of

the target and the eventual recovery of the mini-tank.

Finally, while Trident submarines and MX missiles seem to get all the attention these days, I maintain that there will always be conventional warfare somewhere. Sooner or later this country or the Army will have to concede that the Infantry is here to stay and they may as well make certain it is as well equipped as possible.

Again, thanks for your help and editorial assistance.

WILLIAM L. HOWARD  
MAJ, Armor  
Dublin, Ohio

#### WRITING BOOK

Dear Sir,

I am starting on a book to be titled *How The War Was Won*. Its theme is "Wars are won by people, and people

**We welcome letters to the Editor on any subject that has been treated in our magazine as well as on issues of general interest to our readers. All letters are subject to editing and possible abridgment.**

do funny things."

Any of your readers who have stories to contribute may write to me at 3313 Avery Avenue Southwest, Huntsville, AL 35805, or call me at (205) 881-5732. They should state whether or not they are willing to be cited in the book as the source of the story. Names, dates, places, and organizations need not be cited, but they would add to the story if they could be verified.

ROSS A. SHELDON

#### JODY CALLS

Dear Sir,

I am compiling and editing a collection of Jody calls or cadence songs for publication. I would like to hear from any of your readers who might want to contribute some of the cadences they remember or something about the history of them.

Any contributors may write to me at 4428 Merry Lane W., Tacoma, WA 98466.

SANDEE SHAFFER



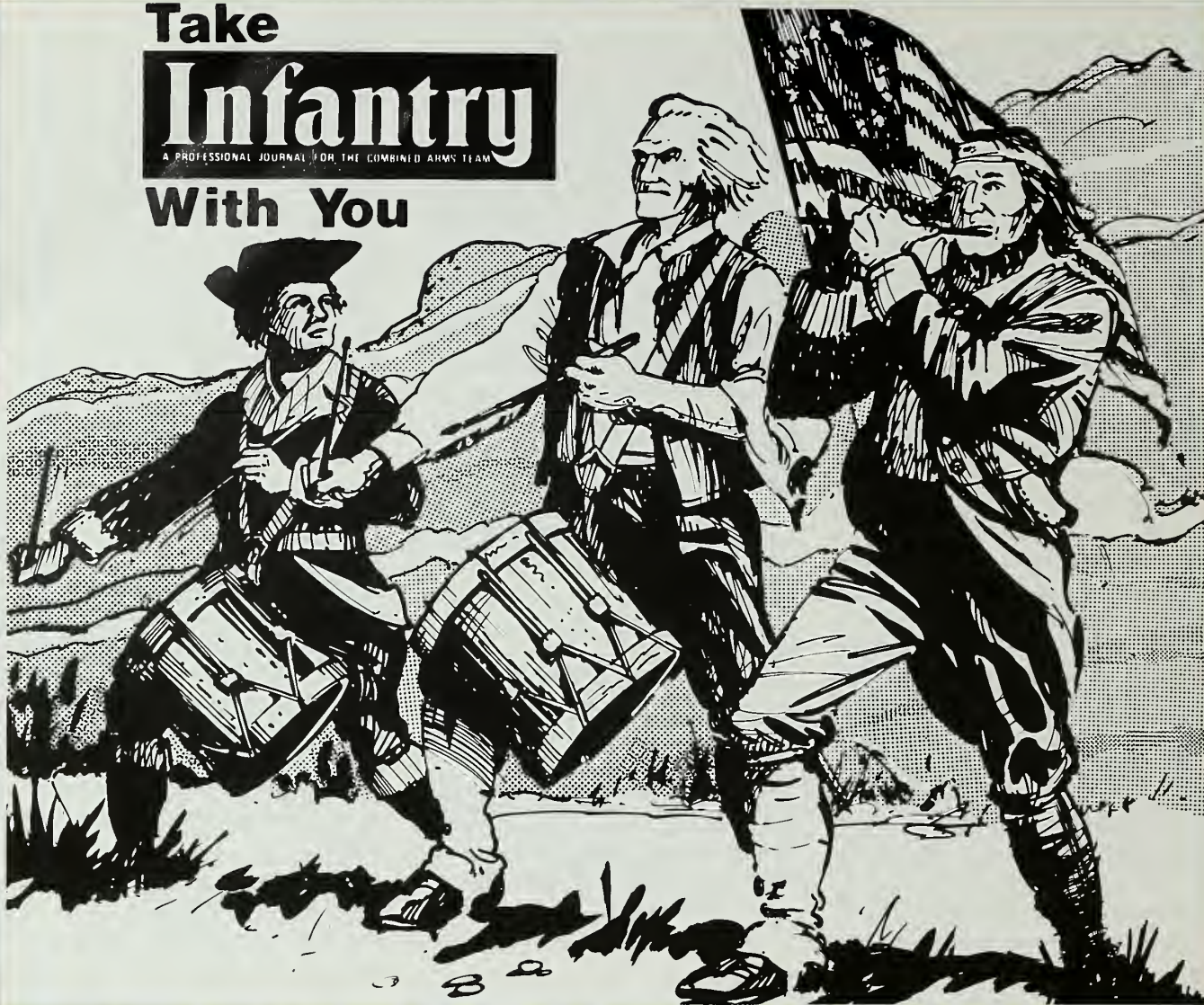


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# From The Editor

I welcome the opportunity and challenge to serve as the editor of INFANTRY. With this assignment, there need be no significant change in editorial policy or format. The mission of our journal remains the same, and that is to provide straightforward information that is factual, timely, and pertinent to you and your unit. With your support the quality of this content will remain high and our standard of excellence will continue.

In my previous assignments as company commander and staff officer, I was made acutely aware of the need for the exchange of ideas on a daily basis. If you have had success with a particular technique or have an innovative approach to a problem, pass it on to your fellow Infantrymen.

Through the pages of the magazine, I look forward to an informative and mutually professional association with Infantrymen around the world.

DRK

OUTSIDE BACK COVER:

Guilford Courthouse, 15 March 1781, by H. Charles McBaron. (Courtesy, Army News Features)







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# Infantry

A PROFESSIONAL JOURNAL FOR THE COMBINED ARMS TEAM



NOVEMBER-DECEMBER 1981



A Department of the Army Publication

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# Infantry

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## FRONT COVER

As the IFV and ITV enter the Army's inventory, the transition will present challenges in both training and maintenance. (Painting by Lieutenant Ed Pearce.)



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# Commandant's NOTE



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**MAJOR GENERAL SAM WETZEL**

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## IALOGUE 82

These are exciting times at Fort Benning! The Infantry School has undertaken proponency for the management of Career Management Field (CMF) 11 and Officer Specialty Code 11. Generally, with this proponency, Fort Benning will play a larger role in the professional development and assignment of infantry officers and enlisted men. The program enables us to speak with "one voice" when representing the collective professional interests of officers and soldiers within our branch. The Infantry School thus becomes the focal point for all branch-related matters involved in the life-cycle personnel functions of procurement, training, education, distribution, sustainment, separation, and retirement. This is a significant step that places input for future policy where the action is, and that is at the user level. This shift will improve the management and professional development of all infantrymen.

Another innovation is the establishment of a Strategic Planning Task Force at the School. This task force will develop the infantry strategic plan that will provide a "roadmap for the future." It will guide both the infantry and the Infantry School through the implementation of Division 86, the Army of the 90s, and the execution of Air Land Battle 2000. This plan will also serve as the foundation for future efforts in all areas affecting the infantry. To ensure that this plan truly represents the needs of the entire infantry community, the Infantry School will establish and maintain an open dialogue with the field and all interested agencies concerning specific areas of interest in planning for the infantry of the future.

Finally, as 1982 begins, the initial fielding of the Infantry Fighting Vehicle (IFV) is imminent both in CONUS and in Europe. All of these actions take place as the umbrella of "Army 86" opens and

encompasses "Division 86" (Heavy) and "Infantry Division 86" (Light).

With the advent of these programs, the School does not want to sit as the wise and all-knowing oracle dispensing doctrine and literature with no grasp of the influence and impact that new systems and organizations will have upon the Infantry soldier — our finest asset. As Fort Benning agencies strive to hone the "combat edge" of each of these innovative programs, we have a vital need for a meaningful and timely dialogue with the field commanders and infantry units around the world. Without it our efforts remain only theoretical contingencies that lack the credibility of real-world test and evaluation.

In the next few months a series of videotapes will be sent to the field. They will contain current information on the fielding of the IFV (M2 Bradley), the transitional mix of the M1 Abrams tank with the M113 and the IFV, and a more definitive outline of our infantry strategic plans for the remainder of the 20th Century. These are "tough" topics that will provide the muscle for our force in the next decade. The infantrymen in the field will be an integral part of that force and we need their input as we field the new systems.

The impact of the instruction given at the Infantry School is felt far beyond Fort Benning. As officers and noncommissioned officers complete the various resident courses, they take up leadership positions of tremendous responsibility in units around the world. It is vital that we receive feedback from the field that we can use to improve and update our instructional material. The key to our success is open and frank communication. Let us hear from you!

**THINK COMBINED ARMS!**

# INFANTRY NEWS



PERIODICALLY, THE INFANTRY SCHOOL sends liaison teams to infantry units throughout the world to ask their commanders about the training and training products that Fort Benning provides.

One problem that seems to surface regularly during these visits is a general lack of understanding on the part of the infantry commanders about our new infantrymen and the training they receive during their initial entry training at Fort Benning.

The 1st Infantry Training Brigade, accordingly, has produced a booklet entitled *Infantry IET Summary for Commanders*, which gives an overview of the 12-week infantry one-station unit training (OSUT) program at Fort Benning. The book contains such items as:

- The current organization for training, together with the names of the brigade and battalion commanders and the command sergeants major.
- A letter to all infantry commanders that explains the infantry IET process and describes the crucial transition period each new infantryman passes through when he leaves the structured IET environment and enters the somewhat less structured world of an infantry unit in the field.
- The mission, goals, and training principles of the 1st Infantry Training Brigade.
- Statistical data about infantry IET for the 1980 and 1981 fiscal years.
- A detailed summary of the infantry OSUT training program that includes the identification of all of the soldier's manual tasks that are taught and tested, the hours devoted to each, and the basic training skills that are not included in Soldier's Manuals. These listings clearly indicate the

tasks and levels of training for each of the CMF11 MOSs — 11B, 11C, and 11H.

Copies of the booklet can be obtained from the Commander, 1st Infantry Training Brigade, ATTN: S3, Fort Benning, Georgia 31905.

THE DIVISION LEVEL INTELLIGENCE-gathering and target-detecting Remotely Monitored Battlefield Sensor System (REMBASS) was successfully field tested recently at Fort Lewis, Washington. The field test — the first for REMBASS — was conducted as part of a training exercise at the Yakima Firing Range. REMBASS is the only division sensor that can see beyond the short range to the edge of the battlefield area.

The system uses a variety of untended seismic, infrared, and magnetic ground sensors to identify intruders moving through the area that is under surveillance. It will detect personnel and wheeled or tracked

vehicles. This information is then sent to radio-sized monitors that pinpoint the location and speed of the intruder.

There will be additional operational and developmental testing of the system during 1982.

THE ARMY'S NATICK LABORATORIES have developed and tested prototypes of a proposed Mobile Food Service Unit concept for the Army of the 1990s, which is part of a new system for combat feeding in the Army.

Work on this project began about three years ago with a breakthrough in packaging that allowed the development of the tray pack (T-ration) for the troops. Tray packs are half steam table size cans containing a single type of food that can be heated while it is still sealed. Since a tray pack's thickness is just two inches, the food inside is of higher quality than can be obtained with a round can of similar size.

Accordingly, a trailer has been designed in which water can be heated in a large metal tank that holds stacking devices. The tray packs would be placed in the stacking devices and would be heated while the trailer was being moved to a feeding location. As soon as the trailer and its two-man crew arrived at a feeding site, they could set up and begin serving troops within ten minutes. They could clean up after serving and be on the road again within a short period of time.

Thus far, test troops have rated the T-rations as better than other types of field rations, including rations cooked fresh in field kitchens.

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THE FOLLOWING NEWS ITEMS have been received from the U.S. Army Infantry Board:

• **New Helmet Communication System.** The Army does not now have a helmet communication system for its mechanized infantrymen that is compatible with the communication equipment in the infantry fighting vehicle (IFV) and that meets the Surgeon General's requirements pertaining to noise attenuation while providing ballistic protection.

In September 1980, the Infantry School asked the Infantry Board to conduct a concept evaluation program (CEP) test of two candidate communication systems that were compatible with the crewmen's helmets and the IFV's communication systems and that also afforded aural protection. Each system had two earcups connected by a behind-the-neck metal band and an over-the-



head strap. The left earcup of each had a microphone and switch, and a microphone boom was on an adjustable pivot.

The test program was conducted in two phases using a nine-man infantry squad working with an IFV. Phase I included a set of non-firing exercises that consisted of dismounting and mounting drills, driving exercises, and simulated engagements requiring the use of all of the vehicle's weapon systems. Phase II consisted of a series of firing exercises in which all of the weapon systems except the TOW were used.

The CEP was conducted to test the operational effectiveness of the systems when worn with the M1 helmet and with the Army's new helmet by troops operating in a mounted role.

The Infantry School will use the results to determine if further development of the device is warranted.

The test manager was Captain John Hames and his assistant was Sergeant First Class James Hosey.

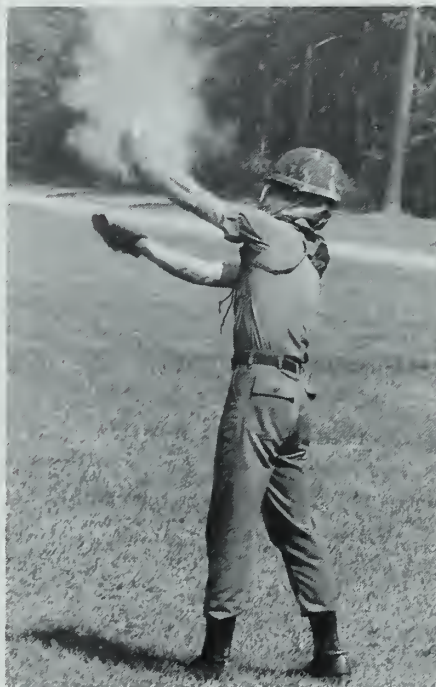
• **Chemical Attack Warning Transmission System (CAWTS).** The need for a chemical attack warning transmission system (CAWTS) was identified by the Unit Chemical Defense Study of May 1976.

During 1977 and 1978, two concept evaluation program tests were conducted to evaluate the suitability of the Army's existing CAWTS. One of the systems that was tested consisted of a hand-cranked siren and a pyrotechnic cartridge that could be launched from the M203. Other systems tested included marine horns powered by freon, U.S. signal cartridges, and pistol-launched German signal cartridges.

None of the systems proved suitable.

The Army's Chemical School recently asked the Infantry Board to test the XM207 CAWTS. This is a modified, hand-held illuminating device that consists of a cluster of one red and two white stars and a pyrotechnic whistle.

The Board conducted an opera-



tional test using a platoon of mechanized infantrymen, part of an armor platoon, and an 81mm mortar platoon. The soldiers conducted such tactical exercises as movement to contact, attack, and defense, all in a simulated chemical warfare environment. During the course of the test, certain soldiers were required to fire three CAWTS each while the controllers fired additional CAWTS at pre-determined times. Too, standard hand-held pyrotechnic devices were used at various times throughout the test to see if the test soldiers could distinguish between the two kinds of systems.

Infantry Board parachutists also conducted airborne operations while carrying the CAWTS, and they also fired the CAWTS on subsequent operations.

The Chemical School will use the results of the test to evaluate the military suitability of the XM207 CAWTS.

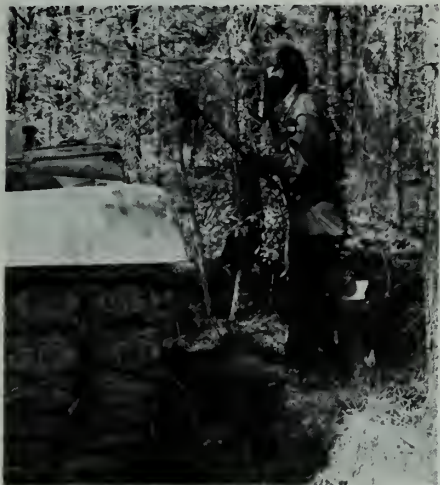
The test manager was Lieutenant Steven S. Wolszczak and his assistant was Staff Sergeant William D. Kaylor, both of the Equipment Test Division.

• **Decontamination Apparatus, Portable (DAP).** Decontaminating vehicles, aircraft, and large crew-served weapons is a major problem for any unit involved in operating in a chemical environment. A study conducted in 1975 cited a need to improve the procedures and equipment then being used by the Army.

The Chemical School asked the Infantry Board to test the Decontamination Apparatus, Portable, M13 (DAP), which was designed to apply a liquid decontaminant to large pieces of equipment. The decontaminant is dispersed from a 4.3-gallon container by a hand pump to an applicator through a 10-foot flexible hose. The applicator is a two-piece rigid wand with a detachable and replaceable scrubbing brush.

An operational test was conducted. During it the test soldiers simulated decontaminating both wheeled and tracked vehicles and also the crew-served weapons that





were used during the tactical phases of the test. The test soldiers wore all of their CB protective clothing and masks.

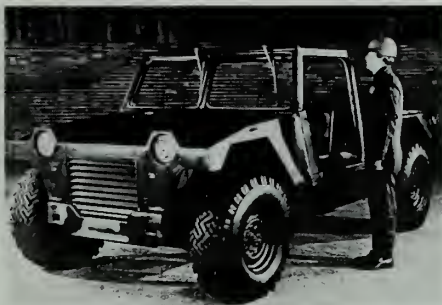
The results will be used by the Chemical School to determine the operational suitability of the DAP and to support a decision to enter advanced development.

The test manager was Lieutenant Steven S. Wolszczak. He was assisted by Staff Sergeant William D. Kaylor. Both are assigned to the Board's Equipment Test Division.

IN OUR SEPTEMBER-OCTOBER 1981 issue we printed a news item about the prototype High Mobility Multipurpose Wheeled Vehicles (HMMWV) that will be built by three contractors and then tested in 1982. (INFANTRY, September-October 1981, page 5.)

Shown below are the prototype vehicles that are being built by the contractors. The first photograph is the one that will be built by Chrysler.

nental Motors.



And this is the vehicle to be built by American Motors General.



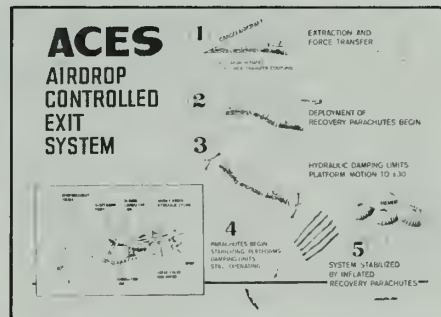
TECHNOLOGISTS AT THE Army's Natick Research and Development Laboratories have recently developed several airdrop systems for the delivery of platform-mounted cargo and other supplies.

The first is the High Level Platform Airdrop System (HLPADS). It will allow the airdrop of a platform-mounted cargo load, such as vehicles, weapons, and supplies weighing from 2,500 to 25,000 pounds from altitudes that are high enough for the delivery aircraft to evade surface-to-air missiles (altitudes up to 25,000 feet).

It is a two-stage system. In the first stage, a standard extraction para-

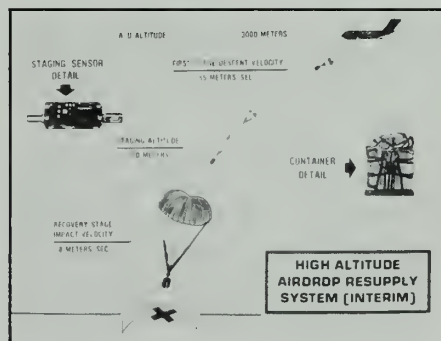
chute pulls the cargo from the aircraft. A smaller stabilization parachute is then deployed to lessen the platform's oscillation. A pressure sensing device releases the main recovery parachutes at 4,000 feet, lowering the platform at the rate of 28 feet per second in a horizontal position.

A second system is called the Airdrop Controlled Exit System (ACES). The system now being used



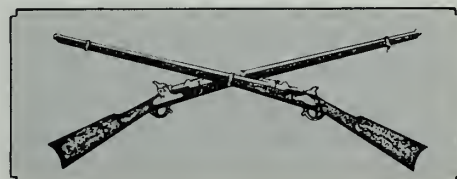
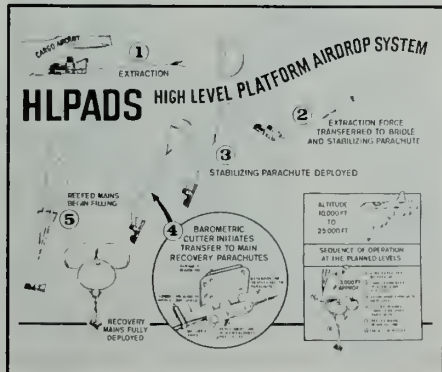
to airdrop several heavy platform loads requires a 30-second delay between the extraction of the first platform and the last. This time difference results in a landing dispersion of about 2,400 meters. With ACES, the Natick people propose to link the platforms together. If the platforms land at the same time linked together the dispersion will be only 22 meters.

Finally, there is the High Altitude Airdrop Resupply System (HAARS), which will supply loads of food and



medical equipment to troops from altitudes up to 25,000 feet.

This is also a two-stage parachute system that permits the airdrop of cargos up to 2,000 pounds.



Shown below is the prototype vehicle to be built by Teledyne Conti-



# FORUM & FEATURES



## TANK KILLERS:

### TOW and a Summation



ROBERT C. SMITH

Heavy infantry antitank weapons — weapon systems capable of ranging out to 3,000 meters or more to successfully engage enemy armor — have been developed by virtually every technologically advanced nation. There are two readily available weapons in this category, the U.S. TOW (tube-launched, optically-tracked, wire-guided missile) and the Soviet Swatter.

The TOW traces its development back to the demise of the DART project, when the U.S. Army realized that if its forward infantry units were to have a credible antitank defense it would have to do something to replace the SS-10 system. The developmental work commenced at a relatively low level of priority, especially since the SS-10 was being replaced with the SS-11. Finally, the TOW was formally accepted into service as a standard system in late 1970, just in time to see extensive combat service in Vietnam.

Originally, the TOW was intended to be a manportable infantry weapon. In fact, it was first issued on a tripod

mount and weighed roughly 80 kilograms (176 pounds). The weapon was designed to break into four loads for transport — the tripod, the launcher, the electronic control module, and the tracking optics and optical sensor module. Since the crew of the infantry TOW was nominally four men, it is apparent that, at least in “leg” infantry units, the crew would have to draw upon other personnel to transport reloads for any distance.

In Vietnam, the TOW system initially encountered few worthwhile enemy armor targets. This changed when the enemy staged a spring offensive in 1972 and committed considerable armor to combat. Two UH-1B helicopters, equipped with sighting units and with TOW missiles hung externally, attacked and destroyed a large portion of the enemy's armor — in 77 launches they scored 62 hits, a success rate of just over 80 percent.

The TOW's effects were devastating. The vehicles that were hit either exploded or were severely damaged, no mean feat with a modern, diesel-

powered tank. Of course, the helicopters had an advantage in that the North Vietnamese did not have an effective air defense system with their units. Despite this lack of opposition, the helicopters demonstrated a very basic fact — they could be effectively used as antitank weapon systems.

Studies, mainly conducted in secret, analyzed the results, and, while they are not yet available, several inferences can be drawn from what happened in the U.S. Army after the Vietnam War.

The Army recognized the fact that the already considerable mobility of the American soldier had to be increased. Its prime answer to this challenge was to increase its use of transport helicopters and to see to it that there was more mechanization for the infantry. It was obvious that the infantry couldn't be increasingly mobile and still be equipped with relatively heavy antitank equipment. Thus, the infantry soon found itself equipped with TOW launchers mounted on light trucks.

The Army also realized that there was a genuine and serious danger that American units might be committed into a chemically intensive combat environment, and possibly even into a nuclear combat environment. In either case, even greater efforts would have to be made to increase mobility, NBC security, and simplicity of operation.

Finally, for the first time in U.S. history, the Army faced a major foreign power that greatly outnumbered it in armor assets, and, according to some sources, one that could claim at least technological parity if not superiority. This meant that it was no longer cost effective for the Army to continue to have its antiarmor assets diffused throughout its entire available force. The assets could be used better if they were concentrated into highly mobile units or placed in relatively mobile, protected vehicles.

The Army decided on a two-step approach in an effort to maintain the infantry's serious antitank capability. It produced the M901 improved TOW to allow the weapon to operate under protective cover, and it decided the quick reaction force that would be needed to counter enemy armor concentrations could best be repre-

sented by the missile-carrying helicopter.

## PROBLEMS

Of course, there are some problems with decreasing the infantry's organic, low-level antitank capability. More centralization of antitank equipment will tend to expose the front-line infantryman to excessive danger in the event of a major enemy armor attack, since the supporting weapons cannot be everywhere all of the time. Too, as was noted in a previous article, ground missile systems have definite disadvantages when they are employed in a tactical role. And an excessive dependence on air-carried systems may result in several problems: systems saturation — too many enemy tanks to be dealt with by too few helicopters; the effectiveness of enemy anti-air operations in eliminating or seriously reducing the number of available missile-carrying helicopters; weather effects that might prevent the use of helicopters or seriously reduce their combat power; and the unavailability of helicopters because of mechanical or other failure.

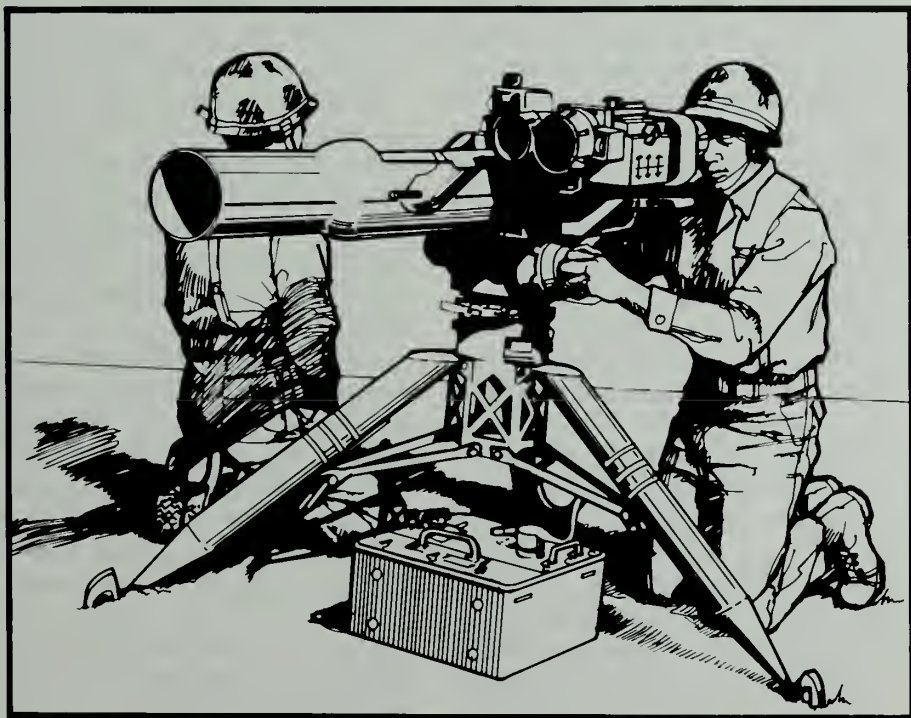
To be sure, the Army is well-served by its present systems, and its

helicopter-borne antitank systems should more than make up in mobility and flexibility for their relatively few numbers. Currently, a new weapon, the Hellfire missile, promises to eliminate many of the problems associated with unmasking helicopters to engage enemy armor because it has a "fire and forget" capability.

The U.S. is not alone in having an effective heavy antitank missile. The Soviets have fielded a similarly effective missile system in their Swatter. For all practical purposes, the Swatter can be considered roughly similar to the TOW in capabilities, although it does not have the same range and it has a lower velocity than the TOW. The biggest drawback for the Swatter system, though, is that the radio command link in its guidance system exposes the weapon to possible electronic countermeasures that could make it ineffective in combat. Furthermore, the current Soviet missile systems are being replaced by newly developed ones, specifically, the AT-4/5 series of vehicle and infantry missiles, as well as the new AT-6 Spiral.

Because of the introduction of all these modern antitank weapon systems, many people feel that the tank is obsolete. But tank designers have not been idle. Over the last few years, for example, they have been pushing the upper limits of the various combinations of firepower, armor, speed, and maneuverability. No modern tank has weighed more than 50 to 60 tons, and these have sometimes suffered from grossly inadequate range. No modern tank has even attempted to grow to the size of the German *Maus* of World War II, and it probably represents just about the greatest lengths anyone is likely to go to in size.

The weight factor is quite important in tank design. While sloping armor is also important, since it results in an increase in armor thickness without an increase in weight, there are limits to how much slope is possible and desirable, because the interior of the tank becomes increasingly cramped as the armor slope in-





creases. Greater thicknesses of armor can be added to increase protection, but there are limits here as well; eventually a monster will be produced that can barely move under its own power.

There are certain subtle disadvantages in increased armor thickness. Increased weight means that ground pressure increases, and mobility and agility decrease; in muddy terrain, the tank with inferior agility will probably bog down and be destroyed. Increased weight also means that fewer bridges, both civilian and tactical, can support that weight. It also means that for rail movements, fewer tanks can be moved for a given engine capacity.

## OTHER MEASURES

If adding armor is not the answer, then some other measures might provide one. The obvious course is to develop improved metal alloys to counter enemy antitank measures. Titanium alloy steel offers a number of advantages, but it is very hard to work with and quite expensive. Some people have suggested a magnesium alloy as an answer; the Soviet BMP uses this alloy, but it has the distressing habit of burning merrily after a good solid hit by a hollow charge of the proper size.

The answer, therefore, appears to lie in the field of ceramics, in effect, a tank built like a giant coffee cup. Obviously, this is exaggerated, but it appears that the new armor, developed by the Military Vehicle Engineering Establishment in Chobham, England, and named "Chobham" in its honor, is basically a ceramic material bonded into a sandwich of metallic plate. According to reports, the new armor is phenomenal in its resistance to penetration by both ballistic and chemical means.

The first tanks to be equipped with the new armor were the *Shir Iran* version of the Chieftain main battle tank built for the late Shah of Iran. Much of that order has been absorbed by

the British and, according to some reports, the Jordanians. Other modern vehicles, including the U.S. M1 main battle tank, are planned to carry this or some other greatly improved new armor.

It appears, then, that the cycle of tank-antitank superiority and rivalry is about to start all over again.

## THE FUTURE

A number of developments could have a considerable effect upon future antitank warfare. The introduction of new forms of armor will probably result in the development of larger, more powerful warheads for the existing ATGMs, although there are practical limits to the amount of increase. A new form of ballistic penetrator that combines the hardness of tungsten carbide with the advantages of the hollow charge effect may be in the offing; the tungsten carbide can be used to "crack" the armor, and the HEAT effect can be used to cut through it.

Some form of improved terminal guidance, the fire-and-forget systems especially, may be fitted to all missiles, reducing the degree to which the firer must expose his position. Along with this may come some sort of offset system of guidance, perhaps on the order of the Maverick system, that will allow the firer to set up his weapon in a disposable launcher on a likely approach route while he picks the safest place for his command position. As soon as he acquires an enemy tank in a TV system, he can launch his missile with no fear of being exposed to return fire.

The ultimate extension of the system would be a missile that could easily be deployed at the front, while the operator remained many miles to the rear in relative safety. Such a system could also be used as a scatterable "smart" system delivered into an enemy's rear areas so that the targets could be selectively attacked.

Mobility, in the traditional sense of foot soldiers, will decrease, since increasingly sophisticated technology

requires increasingly sophisticated equipment and, accordingly, increased weight. Even assuming that control modules remain roughly the same size and weight as today's because of tinier chips and micro-processors, the weight of the missiles will have to increase to carry larger warheads.

Backblast will still have to be reduced and may become more important as missile size increases. While the Armbrust shows that there are ways to get rid of the most obvious signatures produced by missiles, there is a limit to the effectiveness of the principle as their size increases.

Training will continue to rely on simulators to accustom the crews to the effects of firing, with a substantial decrease in actual missiles launched per crew. This may have a detrimental effect, since the simulators developed thus far do not fully prepare a crew for the effect of firing the real missile.

The actual speed of future missiles will increase, and targets will have less time to maneuver and employ countermeasures. But the increased propulsion charges may create more backblast and flash, and they may also increase the probability that the gunner will be detected.

With increases in missile speed, the minimum range of the missiles may lengthen considerably, which could make the user more vulnerable to enemy attacks at close ranges. This condition would be exaggerated in areas of closed terrain, such as those that are found in parts of West Germany, and could result in a less effective infantry response to enemy armored attacks.

The mobility of the various anti-tank systems has probably reached its zenith — at least for the systems we are considering — because of the helicopter. But since a helicopter will be exposed to an enemy's air defense system for at least a portion of its attack, its use may actually prove to be a disadvantage.

The use of laser designators will increase, as will the use of Copperhead smart shells, but this may

come at the expense of more traditional artillery missions. Laser anti-tank weapons are probably several years away, considering their power requirements alone. And we should not expect to be able to use a "Buck Rogers Death Ray" in combat before 1990, or even later.

Ever since the first tanks were committed to battle in 1916, there has

been a struggle for supremacy between armor and antiarmor weapons, with each advance in one bringing about even greater advances in the other. In the future, as far as the pure infantry school of weaponry is concerned, it appears that armor once again will be in the ascendancy. It should be an interesting time for everyone concerned.

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## The MC-1 Parachute



LIEUTENANT CHARLES T. PAYNE

Much has been said about the MC-1 steerable parachute. From its experimental days in the early 1970s to the present time, this single item of equipment has probably been the subject of more discussion within airborne units than any other.

I have served in two battalions of the 82d Airborne Division and have a total of 47 months on jump status. My first assignment was with the 1st Battalion (Airborne), 325th Infantry. I graduated from the Division's Advanced Airborne School (Jumpmaster) in October 1976, and as I was a sergeant at the time, I was used extensively as a safety NCO as well as a jumpmaster. I have 45 military jumps on my log, many of which I made either as jumpmaster or assistant jumpmaster.

My duties were not limited to aircraft roles, of course, and on numerous occasions, I also served as either assistant or primary drop zone safety officer (DZSO). There were other times when I was on a drop zone either as a turn-in point NCO or for training reasons. I am a senior parachutist and Pathfinder-qualified.

From my experience in these vari-

ous roles, I do not think the MC-1 parachute is suitable for mass airborne operations, and I believe the Army made a mistake when it converted most of its T-10s to that configuration. The MC-1 parachute was not designed or intended to be used for mass tactical drops of personnel. It was actually designed to give small units, such as Special Forces teams or reconnaissance elements, the ability to parachute into hard-to-pinpoint, remote drop zones. And only experienced parachutists well trained in its use were meant to jump the MC-1. The single most important fact to remember is that the MC-1 was designed to be used only by small groups of jumpers, rather than by hundreds at one time. I am certainly not opposed to the parachute itself, but to the way it is now being employed.

As a private in the 82d back in 1973-1974, at a time when the T-10 parachute was being used, I never saw or heard of an entanglement between two jumpers, although I understand it did happen from time to time. As I remember, the single most frightening aspect of jumping was the

fear of developing a "Mae West" in which one or more of the parachute's shroud lines would become draped over a portion of the canopy and cause two or more pockets of air to develop.

Another event that was unheard of in those days was the entangling of two parachutists directly under an aircraft immediately after they jumped. And there was no trooper whose parachute would allow him to travel faster than the prevailing wind velocity, so if he did have a poor landing it was not as bone-crushing as it otherwise might have been. (The MC-1 has a T-shape-I modification which is positioned to a jumper's rear as he sits in his harness. It also has toggle-lines that permit him to turn his parachute and run with the wind, increasing his speed by as much as eight knots if he so desires.)

When I returned to the 82d in 1976, the Division was converting to the MC-1. I had not jumped the MC-1 yet so the changeover did not mean that much to me. But by the time I left Fort Bragg three years later, I was firmly against the use of the MC-1 and thoroughly disgusted by its continued



and even broader use by the Division as well as by the XVIII Airborne Corps.

One of the things that bothered me most was the alarming rise in the number of entanglements. There had been a sizable increase in the number of fatalities attributed to parachute accidents; more specifically to entanglements. Also, it had become common to see many jumpers, preparing to land, "run" with the wind and become casualties, although I admit that poor landing techniques accounted for some of these.

The incidence of "accidentally activated" reserves aboard aircraft before the jump commands — at least in my battalion — also seemed to increase noticeably, which caused me to wonder what the underlying causes were for such actions. Naturally, once a jumper's reserve had been prematurely activated within the aircraft, the safety NCO usually had no time to issue the man another reserve out of his air items, so the jumper would scoop up his reserve and go to the front of the aircraft. He did not have to jump.

## MORALE

Perhaps the reason for most of my disagreements with the use of the MC-1 involved the adverse effect the parachute had on the morale of the men. Even veteran parachutists were concerned about jumping. Many troopers who normally volunteered for any jump for which they could be manifested began losing their zeal. I knew many experienced parachutists who thought that using the MC-1 for mass tactical jumps was insanity, and they were never eager to participate in such operations. (This was never openly discussed; an officer or NCO of the Division would never admit to an outsider that he was unduly concerned about jumping. But if one of them was cornered at a club, the truth would come out.)

One peculiarity of the MC-1 parachute, which has been fully documented by the Airborne Board at

Fort Bragg, is that the parachute begins to move laterally when it deploys and fills with air. This has been perhaps the most important reason why so many entanglements have occurred immediately under an aircraft. All parachutists are familiar with the method in which jumpers leave an aircraft — on the green light, one individual from one door goes out, followed one second later by a jumper at the opposite door, and so on until the aircraft is emptied. This method of staggering jumpers with a one-second interval works fine for the first few seconds, but then the excitement of the moment and the possible delays of jumpers on either side usually throws it into disarray. It is at this moment, when the jumpers go out of the doors at about the same time, that they are in great danger, particularly if they are jumping the MC-1 parachute. If the parachutes open in a manner that they cause the jumpers to move toward one another, the chances for an entanglement are enormous. If this is coupled with poor door exits and the likelihood that one or both jumpers have their eyes closed, the prospect for having a fatal accident is indeed great.

Two troopers in my battalion were killed as a result of just such an entanglement in August 1977. There were similar fatalities during my second tour with the Division. Perhaps one of the most spectacular entanglements took place at Fort Bragg in July 1978 while the then Secretary of the Army, Clifford Alexander, was observing a mass jump at Sicily Drop Zone. As the aircraft came over the DZ and the jumpers spilled out, two became entangled under their aircraft. The Secretary, as well as the rest of the audience, watched helplessly as the two soldiers frantically tried to activate their reserves and failed. Miraculously, one walked away unscathed; the other one, though, was hospitalized for months with multiple injuries. A picture of that entanglement appeared on the front pages of many newspapers throughout the country.

Many veteran parachutists ex-

pressed their concern over this issue, and even the Airborne Board recommended at one time that jumps be conducted from only one door to prevent entanglements. In fact, such incidents were occurring with such frequency that in the summer of 1979 the Division instituted a change to its airborne SOP and decreed that from the date of the change all airborne operations would be conducted with three, rather than two, jumpmasters on board each aircraft. This "traffic cop" jumpmaster system, as it came to be called, was designed to ensure that the one-second interval would be maintained, and a jumper would not leave an aircraft until he was physically tapped or saw the jumpmaster signal him personally to go. If for some reason the interval was disrupted, the safety NCO controlling the flow of jumpers was to immediately block the door.

This system did provide a solution to the problem of excited jumpers making uncontrolled exits, and the incidence of entanglement under an aircraft decreased dramatically.

But it did not solve the problem that occurred during the time between the full deployment of the canopy and the landing. Here especially is where inexperienced jumpers have created havoc during mass tactical jumps. In my opinion, an inexperienced jumper with an MC-1 is far more dangerous in the air than a drunken driver is on a country road. Because of the MC-1's maneuverability, the inexperienced or unobservant jumper becomes a "hit-and-run" driver, so to speak, and often causes other jumpers to try to steer away hurriedly to avoid a mid-air entanglement. On many occasions, I have seen an entanglement happen because one jumper engaged in horseplay and collided with another who probably did not know what was happening.

I like the T-10 parachute for a number of reasons. It is a time-proven, reliable model that does not require any additional training. There is no lateral movement when the T-10 opens and, therefore, not much pos-

sibility of immediate entanglement upon exit. Since it is not a steerable parachute, all the troopers in the air who are wearing it drift with the wind, and the prospect of mid-air entanglements is almost nonexistent. Finally, the jumper does not always have to attempt a rear parachute landing fall (as he is supposed to do with the MC-1), thereby reducing the frequency of those injuries that can be attributed to poor landings.

As I see it, the manner in which the 82d Airborne Division now conducts airborne operations with the MC-1 parachute is counterproductive and a waste of resources, time, and assets. It is also harmful to morale. I do not feel that the "traffic cop" system adequately prepares paratroopers to make combat jumps, when they will have to leave the aircraft as quickly as possible. They can do this with the T-10.

Many problems have also arisen because doctrine had to be changed to accommodate the MC-1. When the T-10 was used, an aircraft could usually be emptied with just one pass

over a drop zone. Now that same aircraft has to make several passes, or "racetracks," on most jumps to get all the troops out. The current method of controlling jumpers is agonizingly slow, and this has caused serious morale problems, as anyone who has ever jumped in one of the Division's mass tactical jumps knows.

The increased amount of time that the aircraft must fly because of this method also requires more fuel and places an additional burden on our resources at a time when we can ill afford it. And to say that in combat

the troops will go out as fast as possible without regard to entanglements is totally irresponsible. That probably will be done, but to have even one man killed because of an entanglement would be a senseless tragedy.

I believe we should recognize the fact that the MC-1 parachute is not appropriate for use in large-scale airborne operations and that we should bring back the T-10 parachute as the standard jump parachute. To do anything less continues to expose the finest soldiers in the United States Army to unnecessary danger.



#### LIEUTENANT CHARLES T. PAYNE

has served for several years with the 82d Airborne Division where he attended the Air Movement Operations Course. He is also qualified as a senior parachutist and a pathfinder. He graduated from Officer Candidate School at Fort Benning, Georgia, in 1980 and has completed the Airborne, Ranger, and Pathfinder courses.

## Ram Air Parachutes



CAPTAIN BERNARD W. ALGUIRE, JR.

Ram air parachutes, commonly known as squares, became quite popular among sport jumpers about ten years ago. Since then, many improvements have been made in them: a reduction in the canopy's bulk and weight, an increased forward speed and a flatter glide, and redesigned stabilizers for greater lift and softer landings. For these and other reasons, skydivers all over the world have turned to squares for their main

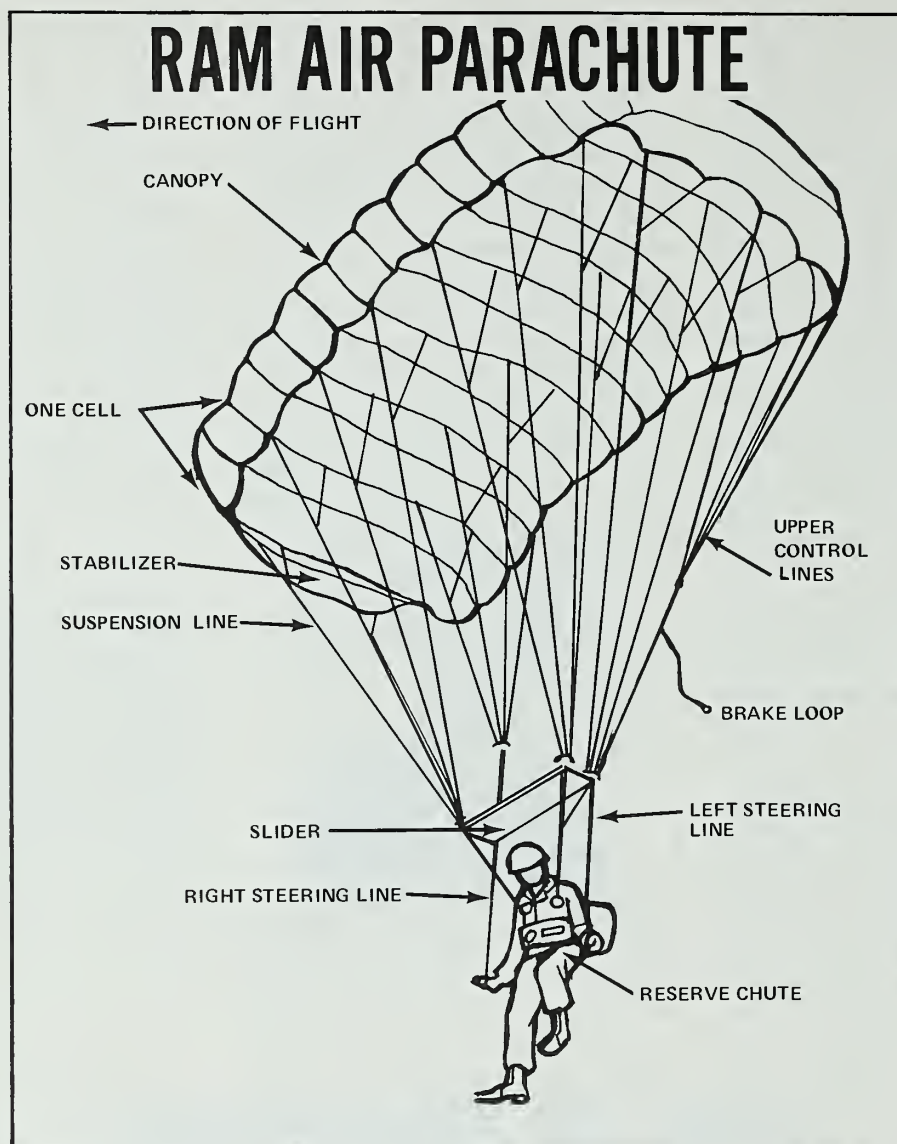
canopies, and some have even taken advantage of a recently developed tandem-mounted reserve assembly for their auxiliary parachutes.

A ram air parachute is really a non-rigid glider that flies instead of merely descending as round canopies do. The ram air canopy is composed of a variable number of cells (usually five or seven) that inflate on opening. The parachute has an angle of flight that causes it to plane through the air

with a forward speed of about 20 to 30 miles per hour, depending on the type of canopy.

Not only is the ram air capable of an exceptional forward speed, but its glide ratio is approximately 3 to 1. This means that a jumper with an open ram air canopy at 5,000 feet can glide 15,000 feet across the ground when there is no wind. This has led some square jumpers to become almost casual in their spotting tech-





niques, because a bad spot (opening far from the designated point) can be salvaged with a ram air and the parachutist can still reach the target area.

As far as canopy control is concerned, the toggle lines for squares are similar to those of conventional round chutes: the jumper initiates a right turn by pulling down on the right toggle, a left turn by pulling down on the left toggle. By pulling down on both toggles simultaneously, he can reduce his forward speed proportionately and apply the brakes. The farther the toggles are depressed, the more the brakes are applied and the slower the canopy flies. For example, at the one-half brake position (toggles about shoulder level) the forward

speed of the canopy is reduced to about 10 to 15 miles per hour; releasing the toggles allows the chute to pick up speed again.

The flight characteristics of ram air parachutes range from full fly with the toggles all the way up and maximum forward speed to 100 percent brakes with the toggles depressed to about waist level and little, if any, forward speed. If the toggles are depressed past the full brake position, the parachute will enter a stall, stop flying, and sink rapidly. While this can be dangerous close to the ground because of the rapid rate of descent, the jumper can use the stall to his advantage to separate quickly from another jumper or to meet other conditions that require a rapid loss of

altitude. Because of the high amount of lift generated by a ram air immediately before a stall, for instance, the jumper can use this to his advantage and perform a flared landing. As a result, often a jumper can land standing up instead of having to perform a parachute landing fall.

When it is compared with conventional round-canopy parachutes, the ram air wins hands down in forward speed with a rating of 20 to 30 miles per hour compared to only about 10 miles per hour for the MC1-1B. Even a paracommander (PC), a more sophisticated conventional canopy with pulled-down apex and stabilizers, can attain no more than 15 miles per hour in forward speed at best.

A ram air chute's glide ratio (3 to 1)

is superior to that of other parachutes. The paracommander can achieve about 1.15 to 1 and a MC1-1B about 0.80 to 1. This means that jumpers with round-canopy chutes must be put out accurately over a drop zone, while those with squares can open their chutes at a stand-off distance from the drop zone and still reach it.

Too, ram airs are much more maneuverable than the other canopies. With them, jumpers can turn faster, brake better, and go into controlled stalls. These characteristics allow square jumpers to assemble more easily in the air under canopy, avoid collisions, and fly and land close together on the drop zone. Thus, troops equipped with squares could participate in airborne operations when high wind velocities might cancel round-canopy jumps. In addition, the added wind would actually make it easier for the jumper with a square to flare and make a landing.

## DRAWBACKS

With all of these virtues, though, there are some things the ram air parachute cannot do. It is not suited for static-line operations because of its unique opening characteristics and because of the malfunction procedures required — its main canopy must be cut away before the reserve can be activated.

Another drawback is that before jumping with a square the jumper usually has to go through a period of transition from conventional canopies. The actual number of jumps needed will vary with an individual's ability and progression. Many sport parachute clubs also require that some jumps be made with an intermediate canopy chute such as a PC before the jumper progresses to a ram air.

Once he successfully completes the transition period, a parachutist should receive instruction from a qualified jumpmaster, instructor, or another jumper who is a competent ram air pilot. He should be checked

out on all aspects of ram air flight, and the characteristics of his particular gear and emergency procedures should be reviewed. Critiques from experienced ram air jumpers can also be extremely helpful during this and other phases of parachuting.

How does this accumulated ram air experience relate to military operations? Basically, squares offer a much more efficient method for airborne infiltration because of their inherent flight characteristics.

Even though jumping with the ram air chute requires a well-thought-out program of instruction and may not be suitable for all operations, it would be suitable and desirable to provide a ram air free fall capability for small groups of parachutists — Special Forces HALO teams, Pathfinder detachments, and selected Ranger units.

The soldiers in these units would then have the ability to infiltrate by employing the most efficient and up-to-date equipment to accomplish their respective missions.

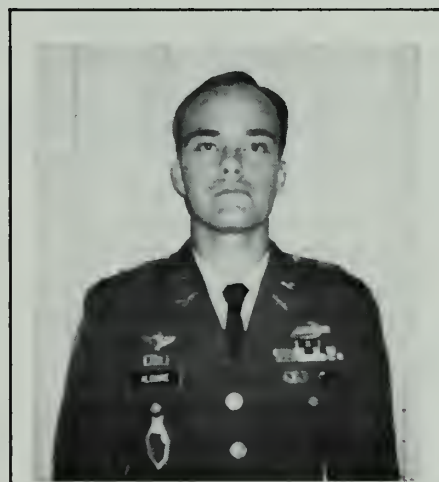
With ram air parachutes these soldiers could deliberately deploy their parachutes high and use the ram air's exceptional glide ratio to actually fly to a drop zone some distance away. Not long ago, for example, a former member of the Infantry School's Airborne Department jumped from an altitude of 30,000 feet, opened his ram air parachute at 29,000 feet, and then flew to a predetermined location 30 kilometers away where he landed with pinpoint accuracy.

The problem of drop zone assembly would be virtually eliminated as jumpers with squares could fly to a drop zone and land together. The soldiers could also carry large amounts of personal gear and equipment because a number of large ram air canopies are rated for suspended loads of some 300 pounds. Parachutists could also land on small, tight drop zones, which could greatly increase the total number of infiltration sites available for a particular operation.

It is evident, therefore, that the ram air equipment and experience

that are available could be very useful in selected airborne infiltration techniques. Programs could easily be established to train selected square jumpers using the military personnel who are already familiar with ram air flight. Even though ram air canopies are not packed the same way round parachutes are, the parachute rigger's course could easily teach this skill with little change in the program of instruction.

All that is needed to make use of these advantages is command emphasis, organization, and the selection of trainers. Such a program could greatly expand the Army's capabilities by taking advantage of the latest developments in parachuting.



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# ONLY TEN DAYS

DANDRIDGE M. MALONE

This side of the battlefield, there is no man in your crew, squad, platoon, or company who is more important than "the new guy" who just arrived. Why? Because he is the future of your unit. He is the one who will be there after you're gone — someone to tell the leader who comes to replace you how good a leader you were. Furthermore, what you do with, to, and for that new guy in the first 10 days will have a major effect on how well you get your tasks accomplished for as long as you remain in the unit.

Today, virtually every major unit has a sponsorship program of some sort, but the formal program prescribed by Army regulations and memorandums gets the new guy to the unit. What happens after that, *in* the unit, you can't do with a program and some poopsheets. It is a leader's job, and you, as a leader, have to get it done in *the first 10 days*.

The first 10 days are critical. The scientists tell us that's about how long it takes a person to get oriented to an entirely new situation and a new bunch of people. Think back to the last time you changed stations. It took you about 10 days to get the lay of the land, didn't it?

"What kind of an outfit is this? Do people seem to give a damn about what they're doing, or not? Are they hard-core soldiers or candy-butts? What kind of leaders do we have? Which ones are good? Which ones are sorry? How's mine? Who knows the real skinny about what's happening around here? What are people going to expect of me? What are the rules of the game about working, eat-

ing, uniforms, formations, haircuts, PT, barracks, loud stereos, and off-duty time? Which people around here will help me? Which ones do I like? Which ones can I trust? Which ones are going to be my buddies?"

Where did you get your answers? You got some from mimeographed welcoming letters and routine new guy briefings, but most of your answers you got from people of about your same rank that you came in contact with during your first 10 days. And the answers to your questions probably came far more from informal, grapevine talk than from written-down, spelled-out, formal policy and welcome letters. You were new and trying hard to get squared away, so you had all your antennas run out. Being the new guy can be uncomfortable, even embarrassing. You wanted to fit in as soon as you could. You listened — close, for what you thought were the true answers for each of your questions. Then, in a week or so, that was it — you got most of your questions answered. You were oriented.

The new guy coming in tomorrow, dragging that duffelbag, gets oriented the same way you did. You can welcome him to the unit, run him through the chain, and let him sort of drift naturally through the first 10 days, or, knowing what's going to happen, you can put some knowledge of the getting-oriented process to work to make your job of developing soldiers far more effective. You only got 10 days, remember? After that, it's normally too late. Here's why.

There are, in any unit, small groups

of people who hang around together. Groups of buddies. Cliques. They won't usually parallel the organizational lines of the unit, but they will usually have some sort of natural, informal leader. Some of these groups are aimed toward the same objective as the unit. They're good — a source of extra strength. Other groups aren't. They're aimed somewhere else, sometimes even against the objective of the unit.

There are far more of the good groups than there are of the sorry groups, so the sorry groups, naturally, are always trying to recruit more strength and power. Now, when you let the new guy just drift, guess who it is that's going to get to him first? And answer his questions? And get him oriented? Your task as a leader is to get his questions answered right — in the first 10 days.

Give the new guy your extra effort and special attention. Assume right off the bat that he is able and willing, or at least willing but unable. Round up two of your own able and willing soldiers and lock them on the new guy like a leech for at least a week. Your able and willing soldiers are your living criteria, or standards; they are what good soldiers ought to be.

You want the new guy, who's trying to get oriented, to take his cues from them. You want your able and willing soldiers answering the new guy's questions and getting him moving into the able and willing informal groups. What this does is two things: It gets the new guy's orientation questions answered right, and, just as

important, it starts to dry up the sorry informal groups by wiping out their recruiting program. In time, therefore, you build a better future for your unit in two ways.

These simple notions about how to get the new guy oriented have focused mostly on the new soldier coming right out of AIT or OSUT, and are mostly "sergeant's business." But the same general principles apply whether the new guy is a sergeant or a lieutenant — he needs close and special attention from an able and willing soldier and from you. Do the right things right, and you'll more than double the return on your investment. Let the new man drift, and you're making more work for every-

body.

I could give you a good checklist of things to do when you bring the new guy on board. But you already have a better checklist than I could ever write because it fits your mission and your men and your unit. Where is it? Right there in your unit. In folks' heads. You just haven't gotten it put together and written down yet. Find six NCOs, tell them how you feel about the importance of the new guys, then lock them up together for an hour. They'll give you a better checklist than I ever could. Then try the checklist on your next six new guys, adjust it here and there, and watch the good things that happen after the first 10 days.

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## *Ditch Diggers and Lead Slingers*



MAJOR JOHN A. BORNMAN

Early on 17 December 1944, elements of the 4th U.S. Armored Division deployed near Luxembourg were meeting strong resistance and taking heavy losses. The 4th Engineer Combat Battalion was ordered to reorganize as infantry and move to positions in the front line within one hour after daylight. Although the engineer unit lacked the combat power of the infantry unit it was to replace, after it was reinforced with a company of tanks and a reconnaissance troop and given division artillery support, the engineers managed to hold their own. In fact, it was one of the few organizations in the vicinity that did so.

Both division and corps engineer units have faced similar situations in Korea and Vietnam and, more recently, in a number of major Euro-

pean exercises. But while engineers have fought as infantry in the past, and will probably do so in the future, they have not always been as successful as the 4th Engineer Combat Battalion, especially during those European exercises mentioned above. This was probably due to the fact that the corps engineer units were not augmented by personnel and equipment after they were reorganized and committed as infantry even though they were expected to defend the same sectors as the infantry units they replaced. As a result, they suffered severe losses and had to be moved to the rear and reconstituted.

These events suggest that while infantry commanders seem to understand the capabilities of their division engineers, they may not fully under-

stand the capabilities and limitations of corps combat engineer units that may be assigned to them as infantry units.

Engineer units are best suited for defensive missions, but they can occasionally be used in the offense as well. Although they train for an infantry role, experience has shown that they are not usually as effective in that role as infantry units are. Accordingly, commanders should compensate for this shortcoming by assigning engineer units shorter frontages to hold in a defensive position or by designating more limited objectives for them in the offense than for other combat units.

The present-for-duty strength of an engineer unit in its day-to-day operations does not mean that many engineers will be available to take up





infantry duties. For example, engineer units have large quantities of heavy equipment that is not suitable for use in their infantry roles; therefore, that equipment and its operators, plus certain administrative personnel, will normally be sent to the rear. When that happens, the effective strength of an engineer battalion will fall to about 650 soldiers all told, considerably less than the number in a fully manned infantry battalion. Obviously, that total may be reduced even further because of normal attrition or other reasons. The point is that an infantry commander may receive a smaller force than he expects, and the force may not arrive on the scene as quickly as he thinks it will.

#### TIME

Because engineers usually work throughout a corps sector, they need considerable time to reorganize as infantry. The scattered units must be reassembled, then reorganized as in-

fantry and moved to the point of employment. At the same time, they have to relocate personnel and equipment to the rear.

Infantry commanders must also realize that corps engineer elements lack mobility; after all, they use five-ton dump trucks as squad vehicles. These trucks offer only limited protection against artillery, small arms fire, or nuclear/biological/chemical attack. And they certainly cannot keep up with armored or mechanized units on cross-country movements. This consideration is most important for commanders who are accustomed to working with only division engineer battalions, which do have tracked vehicles. And it is most important in the active defense, for then the engineers should be assigned to areas that can be defended with wheeled vehicles.

Engineer units expect to lose men and equipment during a mechanized battle because they operate in vulnerable vehicles. But any extra equipment and personnel that is assigned to them can improve their

chances of survival. Thus, augmentation is a critical consideration in committing engineers to the infantry role. They cannot function as lead slingers without the lead, and they have limited supplies of antitank or indirect fire weapons. This means that engineers will need additional Dragons, machineguns, mortars, and TOWs. They will also need other supporting fires from external sources, additional communications equipment with secure devices, and tanks or armored personnel carriers, if possible, to augment their fighting strength.

Corps engineer units will also have to have additional specialized personnel. For example, since corps engineers are not trained to use TOWs and mortars, specially trained crews should go with these weapons when they are sent to the engineer units. The engineers will also need artillery forward observers, air liaison personnel, and specialists in air defense to coordinate direct and indirect fire support, as well as attached scouts to provide reconnaissance support.

And they may require additional medical and ammunition supply personnel as well. Engineers can train to fight, but they must have all of the tools they need if they are to fight effectively.

## TRAINING

Engineer units obviously need training in small unit tactics, battle drill, artillery fire adjustment, and other non-engineer tasks. Proficiency in these skills will improve their chances of surviving on the battlefield, but training is only a part of the requirement. Most infantry unit commanders, as well as their staffs at all levels, must understand the problems engineer units face and the capabilities of these units before they are committed to infantry combat. These same commanders must also recognize that the option of committing engineers as infantry should be considered during all training exercises so that everyone will thoroughly understand the mechanics of it. This "forced learning" can help bring about reaction rather than indecision when the real thing happens. By these means, the maneuver units can be trained in using engineers as infantry, and the ditch diggers will come to understand infantry tactics along with the required new command relationships and processes.

Engineer and infantry commanders at all levels should discuss their mutual problems and capabilities. This discussion should result in the development of plans to be incorporated into the standing operating procedures of all engineer and infantry units concerning the commitment of engineers as infantry. These plans should not be the same for all engineer units, though; each unit's individual operating characteristics should be considered in any reorganization. But any plan that addresses the considerations mentioned here should help to insure a smooth, timely transition for the en-

gineer units.

And the transition would further be eased if all engineer and infantry leaders were aware of these same considerations. One means of developing such an awareness among junior officers and NCOs might be a discussion of this subject in the engineer and infantry officer and NCO basic and advanced courses so that students could work with these principles and develop plans for using them. Another method might be to simulate the commitment or employment of engineers as infantry during field training exercises to provide experience in the interplay required among the various staff sections to support such a maneuver.

## SKILLS

The enlisted engineer soldier could be better prepared if he practiced combat skills, including more infantry skill training during his advanced individual training and as part of the Engineer Army Training and Evaluation Programs (ARTEPs). In areas where conditions permit, small engineer elements, such as squads or platoons, could conduct joint training with their infantry counterparts.

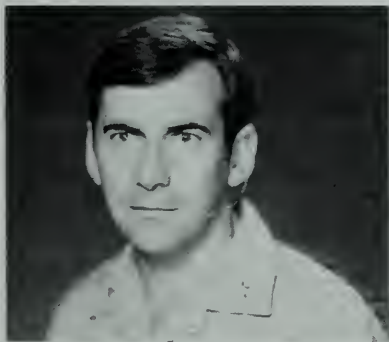
Shortages in equipment and in specialized personnel could be resolved if they were added to the present authorizations of the base tables of organization and equipment (TOEs) for the engineer units. This solution could also help reduce the number of

modified TOEs that are now in existence.

Division support commands could prepare special logistical plans that would insure that the divisions had on hand the critical items needed to support a corps engineer battalion attached for infantry operations. They might even authorize their divisional engineer battalions to stock excess repair parts for items that were common to both division and corps engineer units.

Vehicles that provided more protection for engineer units would not only reduce their vulnerability to enemy fire, but would also improve their mobility on the front lines. Some dump trucks are necessary for their haul capability, but tracked squad and command vehicles would protect personnel from enemy fires and permit faster cross-country movement.

The ideas I have advanced in this article may at least encourage commanders in future conflicts to weigh carefully an engineer unit's ability to function in an infantry role. I certainly have not intended to portray engineers as prima donnas who are unwilling or unable to fight unless they receive special treatment. Ditch diggers will always put forth their best efforts, whether they are clearing mines or slinging lead. As one engineer battalion report puts it: "Tools and weapons as well as names have changed through the years. But the spirit is the same. Always we are builders who can fight."



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# ITV and IFV transition

CAPTAIN ROBERT L. MAGINNIS





The 8th Infantry Division in Germany was the first major unit in the Army to be equipped with the Improved TOW Vehicle (ITV). The introduction of the ITV in 1980 had, and continues to have, a profound effect on the division and its methods of operation. More important, the significant personnel, training, maintenance, logistical, and tactical challenges that were triggered by the fielding of the ITV have set the stage for the greater challenges that are expected when the Infantry Fighting Vehicle (IFV) arrives on the scene.

The ITV shares with the IFV certain features that are singularly new to the Infantry. These include:

- A hydraulically powered turret.
- A daylight sighting system as well as a limited visibility system.
- A stabilized firing platform.

Although these three particular items created new, more sophisticated support and logistical requirements that greatly affected the division's training, maintenance, and logistical systems, they also taught the division's personnel a lot of lessons about the ITV system. And, as the date for the arrival of the IFV approaches, the division's leaders are determined that these lessons will not be forgotten.

## LOGISTIC PROBLEMS

When the ITV arrived, the division's planners found that because of the vehicle's sophisticated logistical needs, they would have to offer better planning and training than ever before to their logistics specialists.

Accordingly, ITV maintenance training was given to designated mechanics as part of a transition training package. Subsequent refresher training sessions were found to be necessary for these people to sustain the individual skills they had learned earlier.

The division's maintenance procedures, equipment, and facilities also had to be modified to accommodate the new vehicle. Unfortunately, even then not all of the maintenance facilities could house an ITV with its launcher raised to the erect position, which meant that certain sensitive repairs had to be done out of doors, regardless of the weather.

## STABILITY

The division's planners realized, too, that crew stability was going to be a critical problem and that the track commander (TC) was the most critical member of the ITV crew. Accordingly, they established a system whereby the rotation dates and personnel moves of the TCs would be closely monitored to reduce the turbulence that could plague the companies and battalions and degrade their readiness.

In addition, all prospective ITV leaders are required to carefully study material from the Armor School in which the crew stability problem is addressed. In stabilizing

crews, there is no substitute for the determined attention to detail with which armor units have always been faced.

## SUSTAINMENT TRAINING

The division also had to develop an ITV crew sustainment package that addressed all of the critical crew skills and evaluated how well those skills were being performed under a variety of realistic conditions. The package that was finally developed consists of four distinct programs:

### ITV Live Fire Qualification Program (ITV LFQP)

This is a three-module program that each ITV unit must conduct at least once every six months at a major training area.

Module A is aimed at sustaining individual skills. It is designed to see that a soldier maintains his proficiency on the M220A1 TOW system itself and on the other skills that are required for MOS 11HE9.

Module B is a crew skills module during which a crew is evaluated on its ability to conduct an operator's checklist (OCL), a preventive maintenance checks and services (PMCS) checklist, correct misfire procedures, and a variety of other skills.

Module C consists of a two-part live fire exercise. In the first part, a TC and his gunner fire the M60 machinegun according to two firing tables. In the second exercise they fire the TOW missile at targets at extended ranges under a variety of conditions. In fact, the division requires that 50 percent of the TOW missiles be fired under conditions of limited visibility at moving targets and at ranges from 2,500 to 3,000 meters.

### ITV ARTEP

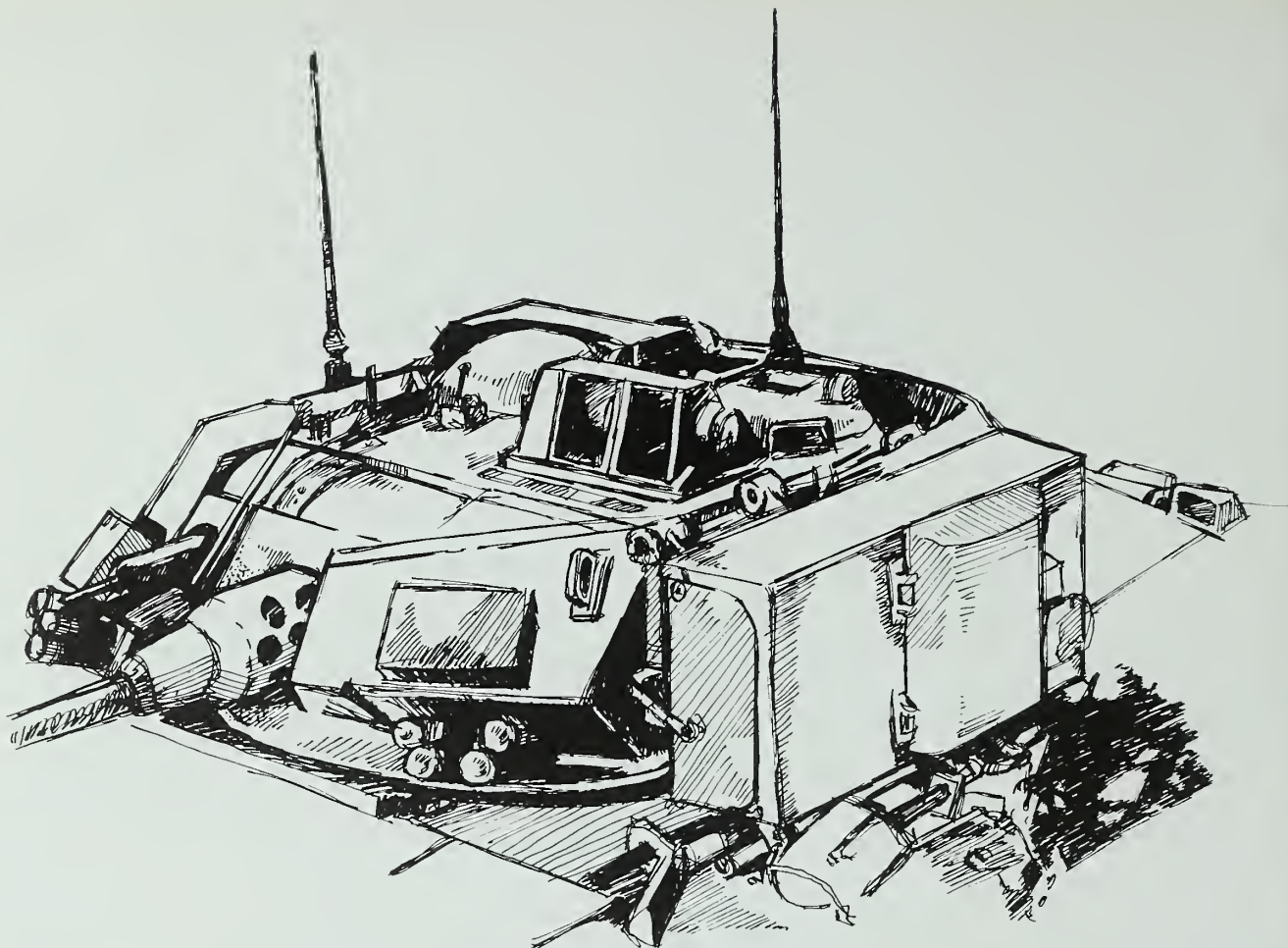
A two-phased external evaluation to ARTEP standards complements the ITV live fire qualification program.

Phase A takes place during one of the division's multi-echeloned training sustainment exercises called Cardinal Point. An entire antitank platoon is evaluated in accordance with a four-part scenario that includes, among others, the antitank platoon tasks listed in ARTEP 71-2. The four parts are a motor pool evaluation, a gunnery evaluation, a crew proficiency evaluation, and a tactical defensive evaluation.

The four-part evaluation is supervised by a control and evaluation task force, which fields an experienced ITV team that knows how to conduct effective after-action reviews. Every effort is made during this deliberate evaluation period to create a non-threatening atmosphere that emphasizes the training opportunity rather than the evaluation itself.

Phase B of the ITV ARTEP evaluation includes field





training exercises conducted in the REFORGER mold. During these exercises the evaluation team concentrates on a unit's ability to give antiarmor support for an extended period under realistic combat conditions.

#### **The Inspector General's Training Proficiency Test**

The division's Inspector General conducts individual training proficiency tests (TPTs) in conjunction with his annual general inspection. The ITV TPT has the same tasks, conditions, and standards as the TOW LFQP and the ARTEP training and evaluation outline. (Unfortunately, the 11H and 19D Soldier's Manuals now in the field do not address the ITV tasks.)

#### **PREPARING FOR THE IFV**

As the Army continues to field the ITV, it should study the lessons learned during the ITV transition period and apply them to its IFV fielding preparations. These should be condensed into at least four areas of interest:

##### **IFV New Equipment Training**

Lieutenant Colonel John Fuller's article in *INFANTRY* (September-October 1980, pages 15-19) discusses

the Army's developing training strategy for the IFV. He explains that the enlisted training strategy, for example, will emphasize one-site training. The 8th Division's recent ITV experience has proved that this is necessary.

But as Colonel Fuller further explains, the Army's current plans stipulate that only Skill Level II soldiers will be trained at either Vilseck or Fort Benning. This apparently eliminates a formal Skill Level I program, which means that the already heavily burdened TOE units are going to have to take on this additional training burden. The 8th Division's experience, for example, indicates that each crew member on the ITV must be prepared to become the gunner on a moment's notice. The Army cannot afford to invest its money in only one or two trained gunners on each vehicle; everyone on the crew must be properly cross-trained.

##### **The IFV Training Sustainment Package**

The most difficult ITV skill to master is thermal sight image identification. The unfortunate absence of published information concerning thermal image identification substantially complicated the division's essential training initiatives and requirements. The eventual introduction of new thermal imaging systems into the mechanized infantry battalion's inventory must be accompanied by an effective target identification training package.

The deterioration of skills on complex equipment is another training sustainment problem. A study conducted for the Army several years ago on the Dragon weapon system indicated that a soldier's physical abilities that were associated with firing the Dragon deteriorated in less than two months. The study concluded that if the particular skill was not sustained regularly it would be lost.

The 8th Division has found a similar problem with its ITV crewmen. Skill deterioration, the frequent turnover of personnel, and a variety of other factors have compounded the sustainment training requirement, because field training and live fire opportunities are necessarily limited. The division is trying to solve this problem, at least partially, with a tank gunnery missile tracking system that can be used in either a field or a garrison environment to help the ITV crews sustain some of their gunnery skills.

The division is also using extensively the multiple integrated laser engagement system (MILES), which gives a commander certain additional training options. But the question remains: Will the division's current training, sustainment, and personnel management programs for its ITV crews prevent the deterioration of the even more complex skills that soldiers will need to operate the IFV?

### IFV Maintenance Program

If the introduction of 206 ITVs into the division's inventory was frustrating, what will happen when those same maintenance and logistical facilities are flooded with several hundred more turreted vehicles? A mechanized infantry battalion already works hard to maintain its reliable M113s and their associated weapons in an operational status.

### Leader Training

The essential ingredients for an effective IFV transition are the involvement and education of its leaders. Before a unit even receives its IFVs, its entire chain of command must become immersed in training, maintenance, and personnel sustainment programs for the new vehicle. A two-hour class with a mock-up of the IFV as the only training aid simply will not do.

The Army must act now if it is to avoid an expensive evolutionary transition to the IFV. The psychological effect of such a transition could be similar to the trauma experienced by horse cavalymen when they had to make the transition to motorized transportation. The transition was long, cumbersome, and costly, during which the cavalymen continually criticized their new horseless carriers while lauding their old dependable mares.

But with the proper guidance and care the transition to the IFV can be more efficient and less traumatic to infan-

trymen. This guidance and care must be the Army's top priority.

### SUMMARY

The introduction of the IFV should give the infantryman that same esprit de corps that long has been associated with armor and cavalry units. The IFV crewman will at last fight from his vehicle, and this alone will mark his transition from his traditional role as a foot soldier to that of a crew member, trained to think in terms of fighting at night in an NBC environment and at extended ranges.

The IFV's introduction will have a dramatic influence, not only on the 8th Division but on the Army as a whole. Numerous pre-fielding requirements must be met. The receiving units, for instance, must emphasize leader education, crew stability programs, training sustainment programs, and the careful structuring of their logistical and maintenance priorities. The Army must provide effective and comprehensive IFV training programs for mechanics, operators, and trainers, and its logistical system must adjust to the IFV's particular maintenance requirements.

The Army must not fall prey to the tendency to make the transition to the IFV successful only because "failure will not be permitted." After all, there is no evidence to suggest that the success of the ITV's transition will automatically produce a successful IFV transition.

The Army needs to learn from the 8th Division's experiences with the ITV and from those of other units that have received the ITV since then. Only then can any unit expect to receive a mechanically reliable IFV, a sound IFV training package, and responsive IFV maintenance and logistical systems that will provide the positive environment needed to build the infantryman's confidence in his newest fighting vehicle.



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# *The Desert:*

LOGISTICS AND MAINTENANCE





*This is the last in a series of three articles on the special aspects of military operations in the desert. The first, in our July-August 1981 issue, dealt with the effect of the desert on the soldiers, and the second covered the special problems associated with operations in general.*

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*The series is chiefly an edited abstract of a British pamphlet – Part 3, Desert, June 1979, Volume V, Operational Techniques Under Special Conditions – which was published by the Ministry of Defence and used by permission.*

One of the major problems with conducting military operations in the desert is that everything the soldiers need to live and fight must be carried there. The harshness of the terrain, the lack of local resources, the high consumption rates of certain items, and the mobile nature of operations all place high demands on a logistical system.

In addition, the environment is hard on all kinds of equipment, and increased levels of support are required to maintain a standard level of efficiency.

When forces move into the desert, the first order of business is to establish a base from which to operate. This base or lodgement area should have a deep water port and an airfield for heavy strategic airlift, and it should be located, if possible, at the end of an adequate road or rail system.

Base development plans should include information on the available local resources: Fresh rations, water, local labor, materials, and transport as well as storage depots and base facilities. This base area, its establishment, and its protection are especially important, because it is vulnerable to ground and air attack.

Planning for the support of operations is also important; rates of consumption are difficult to predict when there are no recent experiences on which to draw. The vulnerability of lines of communication, the loss of supplies because of enemy ground and air attack, the loss of dumps — either because the dumps cannot be found again, have been stolen, or have been misused — all place extra demands on the supply system. Resupply either by air dropping or air landing helps to overcome critical deficiencies. But if units are to carry greater stocks in their supporting echelons in order to be more self-sufficient, then they will need more transport than they otherwise would.

In the forward combat zone the supply system has to support units that move around rapidly and frequently, and logistical units must be able to move at a considerable speed, deploy on short notice, and operate over long distances.

Economy must be practiced at every level; waste cannot be accepted in any form. Salvage and the use of captured stocks are to be encouraged, so long as they are properly controlled.

Dumping may have to be accepted sometimes as the only way of freeing transport for other tasks. However, in mobile operations it could lead to the loss or abandonment of stocks, which if captured by the enemy could be a critical loss to us and might provide him with resources at a time when his own supplies were running low. When supplies do have to be dumped, arrangements should be made either for their protection or for their destruction if

they are in any danger of being captured.

The movement of supplies across the desert from the base installation can be by road, railway, air, or possibly by sea. A favorable air situation is required over the supply routes if logistical support is to move without hindrance. Movement, though, even along well-defined tracks, can be slow. There are few roads in the desert, and even these are unlikely to be in good repair and able to take the heavier load-carrying vehicles; a considerable amount of engineer effort may be required for route maintenance.

Helicopters can be used for resupply, troop lift, and medical evacuation tasks. Concealing helicopters in the desert is difficult, for when they land and take off they raise large dust clouds that draw attention to their operations and to the units on the ground. When helicopters operate out of a landing area on a regular basis, some sort of surface mat should be put down. The payload of helicopters may be severely reduced by the temperature or the altitude; greater lift can be obtained if they operate during the cooler parts of the day. The logistic effort required to maintain helicopters is large and must be considered.

The problems of supply in the desert, particularly to support a pursuit, multiply as the distances from the base increase. Much depends on the state of the roads, on the availability of installations, facilities, and water supply sources after the enemy has gone, and on the amount of demolition. The rate of advance often depends on the ability of the logistical system to sustain it and to prevent the force from being overstretched and unable to face a counterattack. It is unlikely that there will be enough transport, and a policy of dumping supplies forward may have to be adopted.

The composition of task forces in desert operations should be varied. The additional rates of consumption of POL and ammunition, the need for self-sufficiency, and the need to carry water all lead to the grouping of more load-carrying vehicles in each force. If too many soft-skinned vehicles are kept forward, then they become a liability in action, and, when dispersed, they extend the defensive perimeter. If possible, the trains should remain well to the rear protected by distance from the enemy but able to be called forward for replenishment as required. In these cases, the protection of the trains vehicles will present difficulties, and they should rely primarily on dispersion and concealment.

Because it is difficult to find a way across the desert, and because the few roads are likely to be heavily used, a system of strict control of movement is required. Good route marking, reporting posts, and a system for collecting stragglers are necessary.



The one-way use of roads may be essential, while recovery facilities will probably be needed alongside the traffic control posts to keep the main routes open. Where the terrain allows cross-country movement, the convoy system should be used to move supplies forward.

It may be necessary at certain stages of a battle to provide the fighting elements an additional amount of a particular commodity, such as POL during a pursuit. In this case, there is likely to be a conflict of priorities between the forward movement of the task forces and the movement of their logistical support elements. A strong organization and good planning are required to cope with these problems.

## SUPPLY

One of the problems with supply in the desert is that consumption rates must often be developed only after a force has been operating in the area for a while.

The rate of consumption of certain kinds of ammunition is likely to increase: Good fields of fire allow engagements to take place at long ranges and this, together with the problems of ranging accurately, can lead to a greater consumption of artillery and mortar ammunition.

The care of ammunition is particularly important. All kinds need to be protected from the full effects of the heat, the sand, and, when it arrives, the rain; otherwise, the ammunition's performance will deteriorate. Ammunition must be kept clean and free from sand; if it is not it is likely to cause jams when it is loaded.

The consumption of POL will also be higher in the desert because of the mobility of operations, the low traction of vehicles on soft surfaces, and the constant changing of gears. Every vehicle should carry a reserve stock of fuel in cans. The movement and distribution of POL can present serious problems, while dumping packed stocks can present problems of dispersion, protection, and control.

A pipeline can be constructed to move fuel forward from the base. Such a pipeline requires a considerable engineer effort and materials for construction, but it does provide storage within the pipe and reduces the number of vehicles needed to carry POL. Fuel from the pipeline can be distributed by bulk fuel tanker or in cans.

Although the pipeline may be buried, its storage tanks and pumping stations will have to be protected against air and ground attack.

## WATER

Another item of supply, without which desert operations are impossible, is water. Continuous and intensive reconnaissance is required to find sources of it.

Surface water supplies may be scarce or even nonexistent, although in some developed areas water may be available in quantity. In some desert conditions,

geologists may advise on the likely locations of subsurface water and where drilling for it may prove successful. Any water source should be checked for its yield and quality and for the presence of salts and contaminants. (All water must be purified because of the high risk of disease from untreated sources.)

Oases, wells, and dry river beds are sometimes sources of water, but engineers may need to be employed to improve these sources for a better yield. Water can sometimes be found stored in underground cisterns where it has collected from surface run-off during rains; but such cisterns are usually intended to store water for a limited number of people, and they are unlikely to hold enough for military use. (In all locations where there is still a civilian population, care must be taken not to consume those water supplies on which the civilians depend.)

Pipelines can be laid to bring large amounts of water from areas with a good supply, and such lines can be tapped along the route. Although the pipe itself provides storage, additional tanks may be required as well. The tanks should be closed, because open storage is likely to mean substantial loss from evaporation.

The rapid construction of a pipeline and water storage facilities reduces considerably the transport needed to move water. These pipelines do require quite a bit of engineer effort for their construction, though, and they are vulnerable to interference and damage, particularly if they are laid on the surface.

Because of the difficulty of finding water, economy in its use must be practiced at all times and for all purposes. The first priority for the use of water has to be vehicle and equipment cooling systems, and the second has to be drinking water.

Even though men can exist on reduced quantities of water, when their water supply is cut down their efficiency also decreases, and quite rapidly. Any time the supply of drinking water is inadequate and rationing becomes necessary, medical advice must be sought on how much water is required, how much activity the men can undertake, and for how long rationing can safely be continued.

The amount of water needed for each man depends on the temperature, the humidity, and the amount of physical exertion he puts out. It is likely that consumption in severe conditions may be as much as 21 quarts per man per day, including his needs for cooking and washing. He may need 13 quarts just for drinking. In addition to these individual needs, water is also required for medical use and for washing cooking utensils and clothing.

Although the shortage of water in the desert makes it difficult for soldiers to wash their clothing, washing and personal hygiene are too important to be neglected. If sickness is to be avoided, arrangements must be made to provide laundry facilities and, if enough water can be supplied, hot showers as well.

Because of the importance of water to the unit's health, trained men to operate and maintain water supply equipment are vital, and every vehicle must carry a re-



serve of water to use if it should break down or become lost.

## FOOD AND CLOTHING

Next to water, food ranks as the single most important item of supply for the soldiers — not only for their efficiency but for their morale as well. But there are obvious difficulties in providing fresh supplies in the desert, particularly items such as meat, fruit, and vegetables, which deteriorate quickly in the heat.

The use of mess trucks is not advisable in the desert if troops are within range of enemy ground troops equipped with surveillance equipment or if the enemy has local air superiority. Rations that require refrigeration or large amounts of water for their preparation should also be avoided.

No change need be expected in the amounts of food to be consumed, but some items such as fruit (fresh or

canned) are usually in high demand in the desert. It may be possible to provide prepared meals only to small groups of soldiers rather than to complete units because of the distances involved. Every vehicle should carry combat rations for two to three days, with meals being prepared by the crewmen. Battalion task force trains should carry an additional two-day supply of water and rations for the task force, while a three-day supply of rations should be stocked in the division support command.

Appropriate amounts of clothing also must be included in supply plans. The effects of wear and tear because of the climate are usually severe, and an analysis should be made before operations start of critical items and the likely wastage rates. Because the normal methods of supply may be slow, larger holdings may be the best way of meeting demands.

Because of the drastic changes in temperature between day and night, warm clothing and sleeping bags are required, while lighter clothing must be available for



daytime use. In regions where the contrast between winter and summer conditions is great, a complete change in the range of clothing may be required at certain times of the year.

## EQUIPMENT AND MAINTENANCE

The conditions of the desert are very hard on all kinds of equipment, and this increases the number of spare parts that have to be carried and also the amount of maintenance that has to be done.

Equipment is affected by the terrain, heat, radiant light, dust and sand, temperature variations, static electricity, and wind. In a few regions humidity is also a problem.

The desert imposes heavy wear on certain vehicle components. At high temperatures and on stony ground, tire wear is high and punctures occur frequently. The proper inflation for the terrain is important and pressures must be checked constantly. The supply of spare tires, tubes, and wheels should be increased to allow for excessive wear. The terrain can also have a severe effect on vehicle suspensions and transmission systems; on rocky ground these may break and tracks may be thrown.

The poor surfaces in the desert produce excessive wear, while bumping over the ground causes the loosening of nuts and bolts. Servicing schedules for vehicles and other equipment may have to be revised, and constant checking and inspections will be required.

Desert heat also has an adverse effect on many items of equipment and supply:

- All types of engines are likely to overheat to some extent, which results in extra engine wear, leaking oil seals, and loss of power. Excessive overheating results in total engine failure.
- Cooling systems must be checked carefully and frequently, radiators kept clear, fan belts correctly adjusted, and coolant levels maintained accurately. Oil levels also must be maintained carefully, oil changed at the specified intervals, and oil coolers, where fitted, kept clean. (The best use of the prevailing wind should be made to assist cooling by turning radiators into it.)
- In the heat, batteries do not hold their charge efficiently. The electrolyte levels of batteries require more frequent topping off, and dry batteries do not last as long as they do under more temperate conditions.
- The heat increases the pressure in closed containers holding liquids or gases. Care must be taken when opening these containers to avoid a dangerous spilling of the contents.
- Aircraft performance is also affected by the temperature. Flying times are decreased, and the capabilities of an aircraft may change considerably during a day.
- Ammunition should be stored away from direct heat and sunlight. As a guide, if the ammunition can be held in the bare hand, it is safe to fire.
- Wood shrinks in conditions of high heat and low humidity. Hand and digging tools in particular become

## EXERCISE BRIGHT STAR

The following comments were extracted from the after-action report on Exercise Bright Star, conducted in Egypt by units of the 101st Airborne Division (Air Assault).

- M151A2 one-quarter-ton vehicles towing trailers became stuck in the sand. Vehicles should not be overloaded. Trailers are a liability in soft sand and cause the vehicle itself to become stuck.
- The M561 Gamma Goat with winch is the best recovery vehicle.
- There were a lot of tire problems on the UH60 from foreign object damage, mostly from sharp rocks.
- The ground in places was extremely hard. Steel rods had to be used for tent stakes.
- The wind and sand erodes the outer surfaces of equipment. Early morning moisture resulted in corrosion in areas weakened by wind and sand erosion.
- Much greater emphasis is needed on operator maintenance and daily preventive maintenance and on the use of a noncorrosive, electrically conductive lubricant.
- Generator engines had to be changed because sand in the cylinders caused fouling and breaking of rings. A new inline fuel filter should be installed to aid the filter already there.
- Air filters on all equipment must be cleaned daily using air compressors and changed every four days.
- Battery life is shorter for both magnesium and dry cell batteries.
- Particular care is needed on exposed cooling fans such as that on the RT-524.
- Preheaters, generators, burner generators, and air valve cores became clogged with sand and dust. More spare parts must be kept on hand. Cleaning must be constant.
- Sand eroded or pitted helicopter main and tail rotor blades and caused foreign object damage to turbine engines.
- Weapons with oil, grease, or other lubricants on them were susceptible to malfunction from sand, especially M16 rifles and M60 machine guns. Oil should be used only on the critical moving parts and then only sparingly. Each soldier should have a "maintenance rag" in his pocket for removing sand and dust from the working parts of his weapon.

dangerous, because their handles are likely to break and their heads to fly off. Handles should be dampened or oiled to prevent this.

But dust and sand are the greatest danger to the efficient functioning of equipment in the desert, because it is almost impossible to prevent dust and sand particles from settling on moving parts and acting as an abrasive. Sand and dirt can accumulate in any equipment that is not completely sealed and can cause equipment failure.

- All weapons and optical instruments must be cleaned frequently. Covers are required for instruments and optics when they are not in use.
- All moving parts that require lubrication must be carefully maintained; the correct lubricants must be used for the temperature conditions. Sand must not be allowed to enter moving parts as it creates excessive wear; points used for lubrication must be closed effectively after use. Air cleaners for engine intakes and oil filters must be serviced often.
- The frequency of helicopter maintenance tasks may have to be increased, because the dust and sand they stir

up is often taken into the engine where it can cause additional wear on the moving parts.

The variations of temperature in deserts where conditions are humid can result in considerable condensation, which can cause rust, mist in optical instruments, and water in fuel tanks and air pressure systems. Condensation can have a particularly damaging effect on internal airframe structures through corrosion. A good system of maintenance can reduce the effects of condensation, or preventive measures, such as keeping fuel tanks filled, can be adopted.

Changes in temperature produce expansion in liquids and gases; for example, if tires are inflated to the correct pressure during the cool of the night, they may burst during the day, and fuel tanks filled to the brim at night can overflow later, bringing the risk of fire. If these hazards are to be avoided, the correct servicing procedures must be followed.

The atmospheric conditions in the desert and the dryness of the terrain can also lead to a build-up in static electricity, particularly for vehicles and aircraft. The difference in electrical potential can result in a spark between a piece of equipment and the ground when contact is made; this is especially hazardous when fuel is around and an explosion or fire may result. During refueling, equipment must be grounded between the fuel tanker, the vehicle being refueled, and the ground. Aircraft may also accumulate a static charge and should be grounded when it is being fueled and when on the ground.

High winds are another problem in the desert, as they can blow away any items that are not properly secured and can also produce excessive wear in light materials. Equipment should be carefully sited to gain protection from the prevailing wind. Items should be firmly staked so that they do not blow away and get lost, or act as flying missiles and cause further damage.

Because of all these adverse conditions, the desert is hard on vehicles, particularly on engines, suspensions, transmissions, and tires. The number of spare parts allocated both to the units and their logistical elements is

important, and each vehicle may have to carry an additional number of certain items, such as fan belts, which the driver can install. The high mileage that vehicles are likely to accrue also increases the frequency of servicing and repair. In some cases, modifications may have to be made to vehicles.

The recovery of vehicle casualties is vital. They are likely to be spread out over a wide area, and an efficient system of reporting must be provided so that repair and recovery teams can be sent quickly to the right place.

Priority should be given to the repair of armor, so forward repair is desirable, but there is also a need to conceal equipment that is undergoing repair and to protect those who are working on it. Camouflage nets and digging in can afford shade and protection during the hotter parts of the day when the equipment might otherwise be too hot to touch or work on. At night, though, many types of repair work require lights, and suitable black-out precautions are needed. It is often preferable to recover equipment from the battlefield for repair in a rear security area.

There is no doubt that logistics and maintenance are difficult in the desert. Just living is difficult. Fighting in such conditions of heat, cold, wind, and sand is even more difficult. But none of it is impossible — living, fighting, or supporting fighting units.

Just about any type of operation that Army units can conduct in any other environment can be conducted in a desert region. Commanders must take appropriate precautions, though, to protect their fighting men from the severe environment, and they must adapt certain tactics and techniques to fit the climatic conditions. Certainly those who are responsible for logistics and maintenance must change their usual methods of operation to some extent, too.

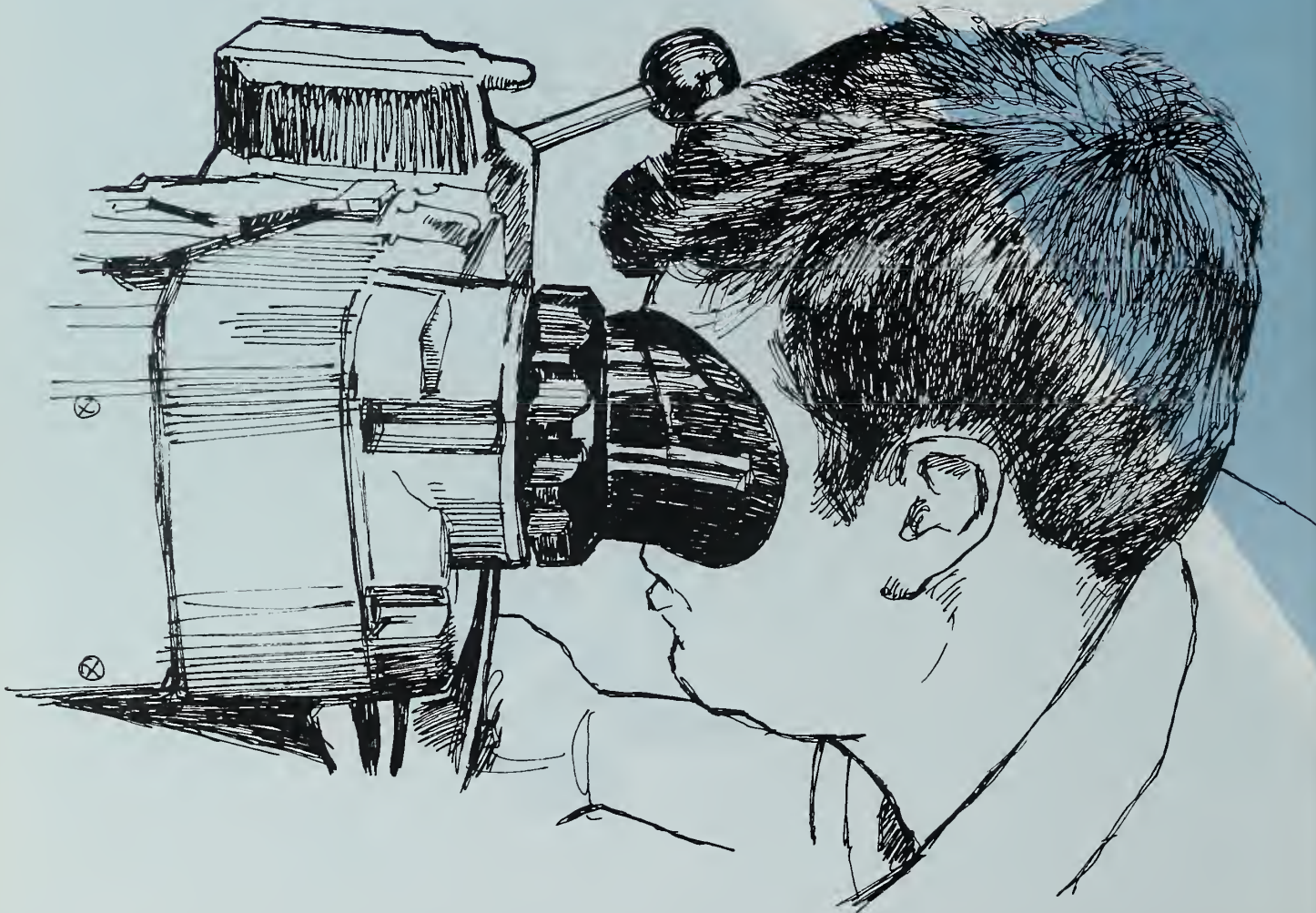
But if soldiers are taught a healthy respect for the desert and how to protect themselves from it, and if they are given some training under something approaching real desert conditions, they should be able to fight as effectively there as anywhere else in the world.





# Range Estimation

**In  
The  
DESERT**  
MAJOR EDWARD L. OLIVER



One of the many problems encountered during operations in a nonmountainous desert is that of accurate observation and range estimation. This difficulty stems from a lack of specific reference points, combined with haze, heat shimmer, and glare.

During Exercise Bright Star 81, the 1st Battalion, 502d Infantry, 101st Airborne Division (Air Assault), trained with the officers and men of the Egyptian Airborne Brigade and learned about these problems firsthand. For example, when the battalion's TOW gunners used their optical sights they could observe targets at great distances and, in many cases, tried to engage targets that were beyond the TOW's effective 3,000-meter range. In another instance, the battalion could see OPFOR armored vehicles at a range of 3,200 meters, while the U.S. commander in charge of the OPFOR unit — and observing from the opposite direction — had to close that distance by about 500 meters before he could see the battalion's activity.

Neither of these lessons, of course, was new. In 1942 while fighting in North Africa, British soldiers used considerable amounts of 2-pounder and 37mm antitank ammunition at ineffective ranges because of their instinct to fire at whatever they could see. And in the beginning of the desert war, several units of the *Afrika Korps* failed to reach their attack objectives because they tried to bypass a lake, which turned out to be heat shimmer — a mirage.

A nonmountainous desert region contains extensive flat areas covered by sand or gravel, although the term "flat" is a relative one. In fact, there may be areas that are 300 meters high and 15 to 25 kilometers long with many smaller natural folds in the ground that can provide cover and concealment for vehicles and personnel. Plant life varies from nonexistent to scrub several meters high, and there are few landmarks such as roads and few terrain features such as hills. Because of the lack of specific reference points, even if an observer can see something momentarily, he may find it difficult to relate the object visually to the surrounding terrain and to use it to estimate range. In addition, sand features or reference points that are established in the morning may be gone by afternoon because of shifting sand.

Most observation problems are caused by the refraction of light through the heated air that rises from the sandy or stony surfaces, a condition that usually exists from late morning through late afternoon. The motion of the air causes heat shimmer or mirages (like the water effect on a hot paved road) and gives rise to a low-lying haze that severely limits observation horizontally.

Heat shimmer reduces the resolution and the small image stability of a target being observed from ground level. Because the shape of the target is distorted, it is difficult to focus or precisely align optical instruments or sights on it. Sights that magnify only increase the effect of the shimmer. Objects farther away than one kilometer appear to move, and it is often difficult to tell a vehicle that is really moving from one that has been destroyed. During the hottest part of the day, an observer on the ground may not be able to see targets at ground level at

any range out to 3,000 meters. It may even seem to him that he is surrounded by a body of water from which islands of elevation stand out. To make matters worse, the sun's rays, both direct and reflected from the ground, produce unusually bright and glaring light conditions that can cause eye strain.

## ADJUSTMENT

Soldiers who have been well trained in the basics of fighting should have little difficulty adjusting to fighting in the desert. They do have to adjust to using their weapons in featureless terrain and under adverse conditions of haze, shimmer, and glare. At the very least, those who are most likely to be sent to such areas must be warned in advance to expect severe difficulties with range estimation, observation, and use of optical systems. More important, they must be taught certain techniques for overcoming or lessening these conditions.

For example, one way a unit can avoid shimmer and haze is to operate only at night, during the early morning, or when the desert has cooled in the afternoon. But this may be impractical, because combat operations are continuous and a unit may have to move into position during the middle of the day. In such a case, antitank systems and forward observers can be positioned above ground level so they can see over the haze or shimmer. High ground, the top of a tank, or a tower mounted on a truck (such as the British used in North Africa), even if it is only ten feet above the floor, will permit an observer to see over the haze and shimmer.

In undisturbed conditions, the difficulty is in assessing the longer ranges in the absence of natural features. In static positions, when a unit has the time, it can put out markers such as poles, oil drums, rocks, panels, or small colored squares to indicate ranges. In all cases, range cards are essential to give details and to improve the chances of an effective engagement; the cards must be updated constantly. In mobile offensive operations it is more difficult to assess ranges, so lasers, ranging machineguns, and other techniques must be used, including the soldier's personal estimate.

Two of the more basic methods of estimating long ranges are the flash-bang technique, which is particularly useful at night, and the recognition method, which is more suitable to daytime use.

With the flash-bang technique, an observer determines the range by measuring the time between the flash of an explosion and its report. Sound travels at a fairly constant speed, about 330 meters per second. When an observer sees the flash or smoke from an enemy tank's main gun, for instance, he immediately starts to count seconds. When he hears the weapon fire, he stops counting and multiplies the number of seconds he counted by the constant, 330 meters. If his count was three seconds, then the range to the tank is about 1,000 meters, or the range of the Dragon.

Determining range by recognition is simple and sur-



RANGE DETERMINATION RECOGNITION METHOD			NAKEE EYE	MAGNIFICATION 7-B POWER
TARGET	TANK CREW MEMBERS TROOPS, MACHINEGUN, MORTAR ANTITANK GUN, ANTITANK MISSILE LAUNCHERS	500	2,000	METERS
	TANK, ARMORED PERSONNEL CARRIER, TRUCK, BY MOEL	1,000	4,000	
	TANK, HOWITZER, APC, TRUCK	1,500	5,000	
	ARMOREO VEHICLE, WHEEL VEHICLE	2,000	6,000	

FIGURE 1

prisingly accurate. Without realizing it, we all use this method while driving. Before passing another car on the highway, for example, we estimate the distance of an oncoming vehicle to determine whether it is safe to pass. This estimate is not in meters but in road space, and it is based on our knowledge of the apparent size of a vehicle at various distances.

This same principle can be applied to estimating distance in meters. With the naked eye, or by sighting through instruments with magnification, the targets listed in Figure 1 are recognizable at the indicated ranges. For example, if an observer can see with his naked eye that an object is a tank, it is within 1,500 meters; if he can see the crew members, it is within 500 meters. Anyone using this method, though, must take into account the size and clarity of the target in relation to its background; bright sunlight and desert terrain conditions make a target seem closer, while other conditions make it seem farther away.

## OTHER METHODS

Range can also be determined by using tracer burnout and the beaten zone of infantry small arms fire or tank-

RANGE DETERMINATION TRACER METHOD		APPROXIMATE BURN OUT
W E A P O N	M16A1	700
	M60 MG TANK COAX	900
	CAL 50 MG	1600
	CAL 50 CUPOLA	AP INCENDIARY

FIGURE 2

mounted machineguns. Both of these techniques allow a gunner to suppress a target, especially in an offensive situation, even as he gets the range to his target to employ either a TOW, a Dragon, or a tank's main gun against it. Figure 2 shows the approximate tracer burnout for small arms and tank-mounted machineguns. It is important to remember that, in the desert, a tracer will normally be "washed out" and undetectable if it is fired when the sun is in front of the weapon position.

To determine range by firing the tripod-, bipod-, or vehicle-mounted machinegun, the weapon must have been previously zeroed. The gunner opens fire on his target with the weapon's rear sight set at the estimated range. (The maximum rear sight settings of the M60A1 and the caliber .50 machineguns are 1,100 meters and 2,300 meters, respectively.) With the tripod-mounted gun, if the center of impact is not on the base of the target, the gunner must move it to that point by using the traversing and elevating mechanism. He then ceases fire and

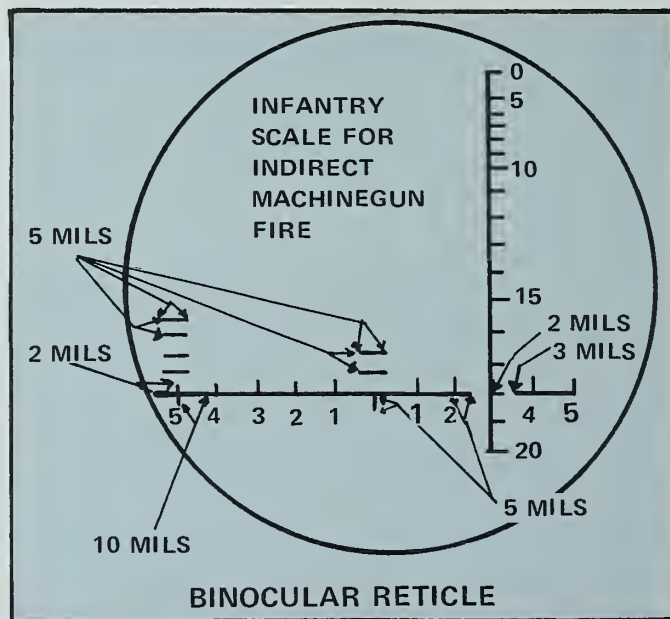


FIGURE 3

resets the rear sight slide so his new line of aim is on target.

With the bipod- or vehicle-mounted gun, if the center of impact is short of the target, the gunner must raise the rear sight slide after each burst. If the center of impact is beyond the target, he must lower the rear sight slide after each burst until his line of aim coincides with the strike of the projectiles on the target. The rear sight will then be set at the approximate range to the target.

A more deliberate range determination technique is the binocular and mil relationship. To use this method, the observer must know either the width or the height of the target. The known width or height is then measured with the binocular mil scale or a sight reticle; the mil reading is then substituted, and the range computed. The accuracy of this method depends on a knowledge of the target's dimensions, the individual's ability to make pre-

MIL ANGLE MEASUREMENT			1	2	3	4	5	6	7	8	9	10
THREAT MEDIUM TANK	LENGTH: 6.5 METERS		6,500	3,300	2,200	1,600	1,300	1,100	900	800	700	700
	WIDTH: 3.5 METERS		3,500	1,800	1,200	900	700	600	500	400	400	400
THREAT HEAVY TANK	LENGTH: 7.5 METERS		7,500	3,800	2,500	1,900	1,500	1,300	1,100	900	800	800
	WIDTH: 3.5 METERS		3,500	1,800	1,200	900	700	600	500	400	400	400

FIGURE 4

cise measurements with his binoculars, and his ability to compute the formula.

But under fire, not many soldiers are blessed with this ability, and they must rely on simpler methods of using the binocular and mil relationship. One of these involves memorizing the mil and line readings in the binocular reticle (Figure 3), and combining them with the data in Figure 4 to find the range to specific objects. All the observer has to do is find his type of target and cross the column for the mil measurement to determine the range. Under shimmer conditions, though, the use of the binocular may be restricted because magnified optics only magnify the effect.

In addition, if a gunner knows the mil value of various items of personal equipment held at arm's length, he can determine the range to a target with a reasonable degree of accuracy. For example, the hole in a dogtag is 7 mils across, a book match is 5 mils wide, and a pencil is 10 mils in diameter. A chart of this type should be placed on or near a gunner's weapon.

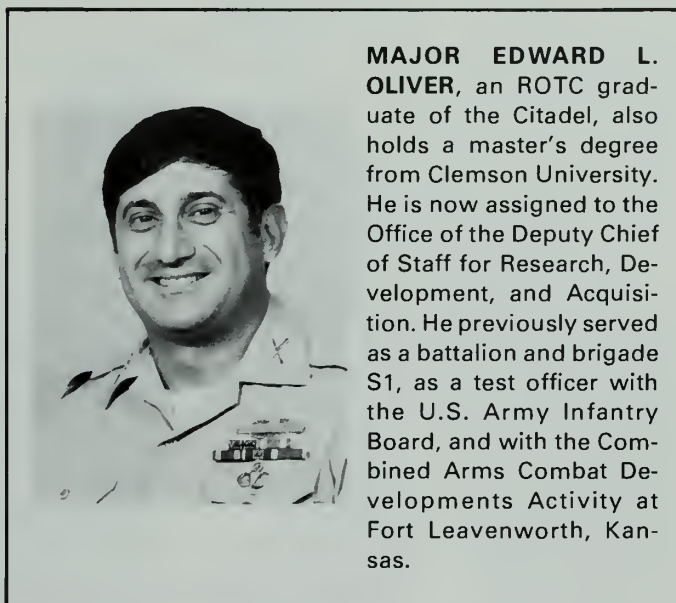
In addition to these techniques, leaders and their soldiers must be aware of the help they can get from the combined arms elements that may be attached or in the area, such as FIST, ground surveillance radar (GSR), and armor. In the FIST, the handheld laser range finder (AN/GVS-5) and the ground locator laser designator (GLLD) can provide ranges out to 10,000 meters, while each tank has a laser range finder that is capable of ranging to 4,400 meters.

Laser sights may be of limited help because, like other optical instruments, they are affected by heat shimmer, haze, dust storms, and smoke, which tend to obscure the target or diffuse the laser beam and give inaccurate readings.

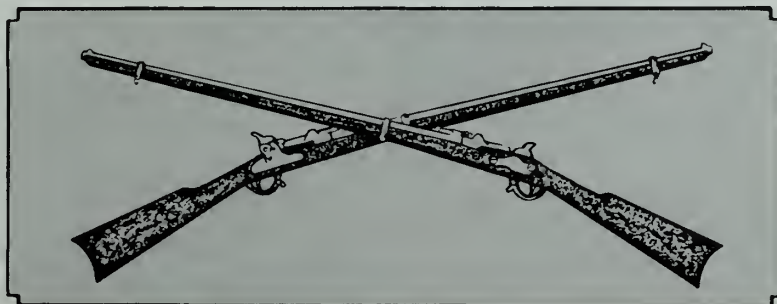
GSR is extremely effective during periods of haze and shimmer and can be used in conjunction with TOWs, Dragons, and other direct fire weapon systems, but is has some disadvantages. The GSR can be used only when there are moving targets, and, depending on the intensity of dust and sand storms, it may be of little or no use.

The coincidence sight of the tank is another system that can be used for ranging, but shimmer and extreme temperature changes diminish its usefulness unless constant, time-consuming adjustments are made.

The basic range estimation techniques discussed here can be used in other regions as well. But because of the special problems associated with operations in the desert, it is in that environment that they can play their most important role.



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# TRAINING LEADERSHIP

CAPTAIN JOHN R. RANDT

*Leadership*  
*Leadership*  
*Leadership*

Leadership is frequently cited as the main element that separates superior military units from mediocre ones. It has been my observation that what is all important is the way this leadership is funneled into a unit's training activities. This is particularly true in Reserve Component units, which meet only two days a month.

Effective training leadership builds military units, and effective units are fun units whose soldiers excel in high performance and morale. Such units always have volunteers, and many veterans sign up for another enlistment — from cooks and mechanics to M60 machinegunners. Superior performance is routine. And even under stress, there is always plenty of humor to go around.

The soldiers pay these units their highest compliment; they join more for the pride and enjoyment of belonging than for the paycheck. It is one of the obvious reasons why some Reserve Component units that are authorized bonus payments for enlistments are never quite able to attain full strength while others with no bonus payments easily maintain their full strength and have a healthy mix of veterans.

Training leadership starts at the top. It provides an atmosphere in which trainers can either thrive or perish. A small unit commander might focus his attention on the training process itself or fall prey to the administrative routines of paperwork and closed-door conferences. While these may be vital features of military life, the wise

commander will plan them for times when they will not interfere with his direct observation, involvement, and participation in his unit's training. There is no real substitute for it unless a desk-bound commander has a cracker-jack training officer to do the job. And, of course, in such a case the latter becomes essentially a surrogate commander.

## PROBLEM

A little over three years ago, I assumed command of a National Guard mechanized infantry company. Officially, the company had a strength problem, but all that

*Leadership*  
*Leadership*  
*Leadership*



was really lacking was training leadership. For our very first drill, we were sent to Fort Bragg for weapons qualification. When we returned to the armory, I faced one of my first administrative duties — convincing a six-year veteran of the company's 81mm mortar section that he should consider reenlisting. Other unit members had advised me that he was an excellent soldier who should be encouraged to stay in.

With little other ammunition, I gave him the standard reenlistment talk, but it was no dice. The Army got another negative statistic, and my unit lost a talented and popular 81mm mortarman. That was my last standardized end-term-of-service (ETS) talk. It was also the last ETS the 65-man headquarters detachment had during the three years I was there. We did decline the reenlistment of a few soldiers, and others left because of civilian job transfers or active military enlistments, but we did not lose any more good soldiers by default.

We simply put together a team of officers and NCO trainers and improved the quality, quantity, and innovation of the unit's training. We set high standards for our individual and unit training programs and then supervised to make sure we got them. The company's officers participated fully with the other unit members. When the soldiers were tested in their 11B and 11C individual combat skills, the officers went along too; they disassembled the .45 caliber pistol and set the headspace and timing on

the .50 caliber machinegun and all the rest with their men.

I found the old reenlistment conference outmoded. An effective training program and the improved spirit and unit pride that go with it give everyone involved a strong reason for reenlisting. As a participating trainer, I found there was ample time for some real personal contact, observation, and advice on the subject during training activities.

As trainers, we broke out of the imaginary boxes of the regimented training schedule. We moved the training away from the classroom and away from uninspired instruction. Instead, we added adventure to the training program. We stressed physical confidence and adventure training.

With a little enterprise, almost anything is attainable. At a nearby U.S. Marine Corps facility, we scheduled regular conditioning and obstacle course training. This regularly featured competition at individual and squad levels. During our annual training (AT) periods at Fort Bragg, ours was the company in our brigade that was repeatedly assigned to conduct an assault exercise over a lake with inflated rubber boats. We planned it that way on our training schedule and cultivated training contacts to keep it and other valuable — and high morale — exercises.

We brought every soldier into the training. In any





given field exercise, we distributed scores of maps, produced from a copier, of the particular military area so that every individual could feel involved and learn valuable map skills at the same time. With a map folded in his pocket, each soldier was always well-informed on any given situation. And this quickly eliminated the problem of lost mess and maintenance vehicles.

## EFFICIENCY

Like the managers of a small business, we stressed the efficiency of our men and sections. During weapon qualification drills, we scheduled transportation to allow our soldiers to qualify or at least to become familiar with two or even three different types of weapons. Strategically-placed supervisors kept the process going and they were instructed to help eliminate bottlenecks, which formerly allowed a soldier to fire no more than one particular weapon during the drills.

During squad and platoon Army Readiness and Training Evaluation Program (ARTEP) exercises, we pre-planned maneuvers so that the actions of our subordinate units complemented each other. For instance, a platoon in a movement-to-contact ARTEP would find its final objective occupied by a platoon conducting a defense ARTEP. A third platoon might be preparing a strongpoint. After execution, we would rotate the three platoons randomly.

Aside from some nominal gripes, it is my observation that soldiers thrive on this type of training and on the challenges that can be woven into it. Many soldiers obviously enlist and stay in the combat arms branches for the physical confidence, adventure, and stress that is associated with them. When these elements are added to the training schedule, it all comes together. Military skill levels soar and unit proficiency exceeds the standards as units fill up with newcomers and seasoned old-timers who reenlist.

A leader, officer or NCO, does not have to be a genius to build and sustain such an organization. But he does

need to spend some time, provide some enthusiasm, and work hard at the usual leadership skills. Once the momentum gets going, his main job is to stay ahead of it. The commander has to keep in shape, because every unit member will be trying to compete with him. And the trainer has to put innovation into his training schedule. Of course, there will always be a large amount of classroom work and required briefings, but a determined commander can find time for adventure and competition within that framework.

The process builds like puzzle pieces falling into place. As unit strength grows, the commander can become more selective in his recruiting efforts. The lessening of personnel turbulence sharply reduces paperwork for the commander and the unit technicians, allowing their energy to go into more creative pursuits. This kind of leadership can affect the whole concept of a reserve unit's soldiering. Besides, it's a lot more fun.



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## MILITARY ENGLISH

(*Mailing List*, Volume X, 1934-1935)

There must not be the slightest chance of error because of language. Mistakes enough will occur without adding the risk of further mistakes on that account.

And because it is mainly during peace that we form our habits of written expression, it is then that we must guard severely against indeterminate, ambiguous, and cryptic usage in military English. Besides, the clearer we make our regulations and instructional materials — which give us our best practice in military writing — the less the effort required in understanding them; and, again, the less chance there is of misinterpretation, misapplication, and misunderstanding, when war does come.

Here, too, we can hardly do better than quote another passage of Captain [Liddell] Hart's, this time from his article on Infantry in the *Encyclopedia Britannica*: "The future Infantry must be permeated by the best doctrine the War can teach, and this doctrine must be expressed in language so simple and metaphors so clear, that it can be as readily grasped by subalterns and corporals as by general officers. Its manual of instructions should be as intelligible to the Australian bushman as it is to the staff college graduate."

## STANDING OPERATING PROCEDURES

(*Infantry School Quarterly*, July 1949)

What makes some military organizations better than others? All units are built from the same basic raw material — a cross section of the American people with all the varied temperament, abilities, interests, and potential that is characteristic of our population. Why is it then that some units rise to lofty heights of proficiency while others continue to stumble along the road of mediocrity?

The proficient unit is a fine team, working together to accomplish the common mission while the mediocre unit is a disunited group, frequently working at cross purposes or not at all. The good unit has a clear understanding of its job; each element understands the part it plays in contributing to the whole. The poor unit is fraught with uncertainty, misunderstanding, and friction.

This the good leader knows. So he takes steps to insure that his unit will function as a team — that the elements will work together with understanding, without lost motion, and with maximum accomplishment for effort spent. The good leader achieves this end by positive direction in the form of timely orders, concisely and clearly stated. However, once the leader determines the best procedure for accomplishing a given task, and this task becomes a matter of routine, it is

not necessary for him to issue a new order each time the procedure must be repeated. Obviously, this is unnecessary duplication.

Standing operating procedures provide a commander with a means of achieving teamwork and a means of raising standards of performance. They contribute much toward eliminating confusion and uncertainties within a command. But they are not a cure-all. No unit can reach a state of maximum efficiency and proficiency simply through the employment of sound standing operating procedures, yet on the other hand, no unit can reach this state without them.

## DON'T LEAD HIM BY THE HAND

(*Infantry*, July-September 1958)

During the past few years the constant refrain of far too many field grade commanders has been, "The trouble with the young lieutenant today is that you've got to lead him by the hand."

The tendency on the part of far too many commanders is to try to do everything by themselves. Too few junior officers are trusted to do anything alone or to make any decisions on their own.

The results of our failure to develop initiative among our junior officers can be far-reaching and even disastrous. Almost invariably, a careful look at a unit in which the initiative of the junior leaders has been held in check will reveal a unit with poor morale. On the surface the unit may appear to be top-notch, but underneath there will be a malignant current of dissatisfaction, and under any real stress the unit will fall apart.

We go to great pains to engender pride in the uniform, in the service and in the young officers themselves during their training. And then we do an about-face and kill this pride by ignoring these young men time and time again. In far too many instances this is carried to such an extent that field grade commanders will go directly to the squad leader to make some correction, instead of placing the responsibility where it belongs: squarely on the shoulders of the company or battery commander. Under these conditions it doesn't take too long for the junior officer to discover that he has no real authority and isn't allowed to make his own decisions. Naturally, the course of least resistance for him is to sit back and wait for the "old man" to tell him what to do.

Many potentially fine young officers are leaving the Army today because they feel that they are not trusted to do even the simplest jobs under their own steam. Gone is the pride that is part and parcel of commanding "your own" unit, however small. And going with it is the incentive to stay on in the service of our country.



# TRAINING NOTES



## DELAY TACTICS

CAPTAIN CHARLES S. HAFFENDEN

During the last five years, a relatively new concept in defensive tactics — the active defense — has made its appearance and has come to dominate discussions and debates on tactics. A much older tactic, though, and one that complements and plays an integral role in active defense operations is the delay.

The active defense requires a concentration of forces in sectors where an enemy's main attacks are expected. The remaining, thinly held sectors of the battlefield, usually known as economy of force areas, must therefore be occupied by forces that may not have the combat power they need to defend. These forces will usually be ordered to delay, as part of the larger, overall scheme of the active defense, to prevent an enemy breakthrough until friendly forces have dealt with the enemy's main attack and can be reconcentrated elsewhere to parry the enemy's next thrust.

Essentially, then, delay missions trade space for time, and are among the most demanding of all ground combat operations. Units performing them are usually stretched to their limits, and sometimes beyond, in the areas of command and control, lead-

ership, resupply, communications, and troop morale. The basic concept implies these four main tasks:

- Destroy as much of the enemy as possible.
- Cause the enemy to deploy and conduct successive maneuvers.
- Preserve the delaying force's freedom to maneuver.
- Preserve the delaying force.

To accomplish these tasks, the commander must develop a flexible plan. The plan may be considered similar to a succession of traps, an orchestrated set of situations or maneuvers organized like a puppet vignette in which the delay force is the puppeteer and the enemy is the puppet. By pulling the proper strings, the delay force draws the enemy into a series of well-planned, well-coordinated, and where possible, well-rehearsed actions intended to harass, frustrate, and inflict casualties on the enemy.

Traps are designed to engage the enemy in prearranged kill zones or engagement areas, with the initial engagements being built on as the situation demands or the opportunity presents itself. At the last possible moment, the delay force moves from the enemy's grasp to begin a new series

of traps with the same objectives.

The nature and size of the traps that are set will usually vary. They can involve units ranging in size from a fire team to a company team or even a battalion task force. They may include such operations as ambushes, raids, armor-killer teams, or counterattacks. Regardless of the size of the unit or the type of operation, the traps should have the following characteristics:

- **Surprise.** The enemy should be hit at an unexpected time or place from an unexpected direction. This will allow the delay force to seize the initiative momentarily at key locations on the battlefield.

- **Speed.** The operations must be executed rapidly. Ideally, a trap should be sprung and the enemy damaged before he can react. The operations must be continuous and contact must be maintained. The delay force commander should confront the enemy with a continually unfolding series of traps to keep pressure on his foe and off his own force. The faster each trap is executed and the faster the traps come in succession, the greater can be the effect on the enemy.

- **Violence of Execution.** The trap

plays must be executed with a vengeance. The harder the enemy is hit, the more difficult it will be for him to continue his attack. Trap plays should take two basic forms: "stings" and "knockouts." Initially, the enemy should be stung and stung hard. He should be punished for each forward step he takes in an effort to enrage him and get him to act without thinking. Once his vision becomes fixed on the delay force, the latter can then begin a process of attrition until the time comes for it to knock out isolated enemy units. Violence of execution and an aggressive, offensive spirit will also help maintain the morale and discipline of the members of the delay force.

## CONCEPT

The intent of the commander will determine how a delay will be conducted. The commander must describe his concept of the operation in terms of time, terrain, and preservation of the force. If the commander's intent is to delay the enemy as long as possible while still maintaining the combat effectiveness of the delay force, for example, the mission is described as having a lower degree of risk. In this case, the importance of preserving the delaying force outweighs the time to be gained. The characteristics of a delay with a lower degree of risk are:

- The enemy is delayed as long as possible while a decisive engagement is avoided.
- Usually no time limit is specified.
- Space is traded for time, assuming there are no terrain restrictions.
- Combat effectiveness is maintained.

On the other hand, if the commander's intent is to have the delay force hold the enemy forward of a particular line or location for a specified time, accepting whatever amount of engagement is necessary to accomplish the mission, the mission is said to have a higher degree of

risk. In this case, the importance of gaining time overrides the preservation of the force. The characteristics of a delay with a higher degree of risk are:

- The enemy is delayed for a specified time.
- The units may be required to defend or retain a specified position or area.
- Decisive engagement may have to be accepted.
- The delay force may trade space and the preservation of the force for time.

As a delay mission becomes more restrictive in terms of time and terrain, of course, the risk to the delay force increases. Although risk is not a mission, the commander must communicate the acceptable levels of risk if his subordinates are to understand how he wants them to conduct a delay in terms of preservation of the force.

## DISPOSITION

The terrain will dictate the disposition of the delay force and can be the delayer's most valuable ally. When correctly used, the terrain can protect the delayer and impede the attacker, and expose him to the delay force's fires. The delay force commander must gain an intimate knowledge of the terrain and then must use that knowledge to position his forces and develop his tactical plan.

He can use battle positions or sectors or a combination of the two to position his forces. The conditions that favor using battle positions are:

- The avenues of approach are well-defined.
- The terrain permits the delay force to engage the enemy at long ranges.
- The assigned frontage is narrow enough to allow mutual support between battle positions.
- The enemy can be confined to the avenues of approach.

The conditions that favor delaying

in sector are:

- The avenues of approach are not well defined.
- The delay force must cover a wide frontage, and there can be no mutual support between the subordinate elements.
- The terrain does not permit the avenues of approach to be covered by observation and fires.

The delay force commander must maintain a degree of flexibility when he positions or repositions his forces. He can change boundaries to allow a threatened unit to concentrate in a smaller area, or to bring a reserve unit into action. He may order his least engaged force to counterattack the flank of the enemy to relieve pressure on a unit in trouble.

He should also use phase lines to control the rearward movement of the delay force to ensure that his units do not move too far too fast, thereby opening a dangerous gap for the enemy to exploit. If he assigns a date and time group to a phase line, he intends for his force to hold the enemy forward of that line until the specified time. In that case, the phase line is called a delay line.

The delay should begin with an aggressive effort to make contact with the enemy and to get information about the size of the enemy force, its location, and its direction of attack. The collection and analysis of intelligence must continue throughout the operation so that the delay force commander can anticipate the enemy's next move and take the necessary steps to counter it.

Once the initial reconnaissance and screening has been completed, the forces performing this function should be withdrawn. The delay force can then begin the delay from its initial positions. At this stage of the battle, the delay force must try to make the enemy believe he has run into a strong defensive position. When the time comes for the force to displace, it must take care to deceive the enemy about what it is doing. The enemy must continue to think that the delay force's actions are part of a full-scale defensive battle.





The two methods that delay forces will usually use to maneuver to subsequent positions are the delay on successive positions and the delay on alternate positions.

The delay on successive positions involves fighting rearward from one position to another and holding each either for as long as possible or for a specified time. It has the following characteristics:

- A wide frontage must be covered and there are only enough forces to occupy a single line of positions with no force in depth.
- The delay between positions is continuous.
- There is little time to prepare positions in depth.
- It is adaptable to various schemes of maneuver because of the terrain and the difficulty in achieving mutual support and covering fires.

The delay on alternate positions calls for the units of the delay force to be deployed one behind another on alternate positions. After holding in position as long as possible, or for a

specified time, the forward unit withdraws through the rear units to another position. The delay on alternate positions has the following characteristics:

- Security is increased.
- The delay is not continuous, and maintaining continuous contact with the enemy may be difficult.
- It requires more time to prepare the various positions.
- It is easily adapted to various schemes of maneuver.

A delaying force can go from one form of maneuver to another or it can combine them, if necessary. Units may be positioned in depth along the most dangerous avenues of approach, for instance, while the rest of the delay area may be held by a single line of forces arrayed on successive positions. The major challenge facing the commander of a delay force is to maintain control over his elements even as he ensures a consistent delay of the enemy during the turmoil and confusion of battle. He must be aware of any gaps that may appear

between his units as they maneuver about the battlefield and must see to it that the gaps are managed, held to a minimum, and kept under surveillance.

He must also see to it that his subordinate commanders take charge of any lost or separated delay force elements and incorporate them into their plans until they can be returned to the control of their parent units. This will have the positive effects of increasing control, fighting panic, and ensuring that the greatest possible use is made of the available combat power.

Delay operations present a commander with one of his greatest challenges, because they are usually conducted under adverse conditions with minimal forces.

A German general, being praised for his outstanding generalship during the Franco-Prussian War of the late 19th Century, was told that his reputation would rank with such great commanders as Napoleon and Frederick the Great. He replied simply: "No, for I have never conducted a retreat." He fully appreciated the complexities involved in retrograde operations.

Our leaders must develop an understanding and an appreciation of retrograde operations, operations that their units may well be called on to perform.

There is certainly no disgrace attached to a planned and orderly rearward movement. It is a reality of warfare. In the words of General Sir George Bell, a British veteran of the Peninsular and Crimean campaigns, a delay ". . . is in no way inferior to brave charges, as having less of fortune, more of discipline, and as much of valor."

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# The First Sergeant

COMMAND SERGEANT MAJOR WILLIAM J. CRONIN

There are few positions in the Army that require more day-to-day expertise or more pure professional devotion than that of first sergeant. It is a demanding job but a rewarding one, and only a select few non-commissioned officers are truly prepared for it. Many who are offered that opportunity decline it — some of them because they don't understand what is involved in it.

The idea that the company commander commands the company while the first sergeant runs it gives great prestige to the first sergeant. And in a non-tactical environment, this is basically the way day-to-day functions of the company should be handled — when the company returns from a field exercise, the first sergeant takes over.

To oversimplify this relationship, the commander gives the first sergeant a mission and tells him when he will want to inspect or check the results. The commander then goes off with the platoon leaders and other company officers to attend to officers' business, while the noncommissioned officers, under the direction of the first sergeant, get the job done. When he is ready, the first sergeant informs the commander, who then brings the officers back into the operation to inspect and make sure the results meet his standards.

The first sergeant's overall responsibility, then, is to insure that the company is ready for any mission the commander may have for it. Within that overall mission, of course, there are many things the first sergeant

must take care of. One of the most important is taking care of the needs of the enlisted soldiers in the unit.

To do that, the first sergeant has to have the support and assistance of the unit's other noncommissioned officers. I see these NCOs as forming a noncommissioned chain of leadership.

The members of the NCO chain of leadership are basically the NCO counterparts of the commissioned officers in the unit. They fall into two groups — the leaders and the company staff. The leaders are the platoon sergeants, who are responsible to the platoon leaders for tactical matters and to the first sergeant for personnel matters. The staff NCOs — the motor sergeant, the supply sergeant, and the other key NCOs who are not assigned to the line platoons — are responsible to the executive officer for support matters and to the first sergeant for personnel matters.

But this category called personnel matters includes a lot of specific functions that deal directly with the soldier from the time he is assigned to the unit until the time he leaves it. The first sergeant should, therefore, develop some definite policies on such things as the inprocessing of newly assigned enlisted personnel, the development of subordinates, counseling, promotions, and Soldier's Manual training in individual tasks.

Once his policies have been approved by the commander, the first sergeant can then see to it that his

enlisted chain of leadership carries them out. Here is the way I think those policies should be handled:

**Inprocessing.** The first sergeant should brief any new soldiers on company policy, and then assign them to platoons, where the platoon sergeant should then brief them. Each of the soldiers should then be assigned to a squad, where the squad leaders should also interview him and record certain information for future reference, including his rank, full name, social security number, home address and phone number, his weight, height, and any physical limitations (profile), and the name, address and phone number of his next of kin.

The squad leader should also be excused from his regular duties so that he can accompany the new squad member during his inprocessing.

A job book should then be established for him and, as soon as he has been issued the necessary equipment, the testing and teaching of his Soldier's Manual tasks should begin. The commander's manual (or extracts from it) for skill qualification training in each MOS field should be made available to all leaders and supervisors.

**Development of subordinates.** All supervisors should have continuing programs to test and teach their subordinates on a day-to-day basis. These are some of the things a supervisor should do:

- Encourage the soldiers to enroll in nonresident courses of instruction on their MOSs and on leadership.



- Check the soldiers' lessons before they are sent in for grading; insist on excellent or superior grades, not just satisfactory.

- Use subordinates as peer trainers within the squad when conducting Soldier's Manual training. (This gives the supervisor an opportunity to determine the subordinate's ability as a trainer and to improve it.)

- Place subordinates in charge of the unit periodically and observe, evaluate, and critique their performance. (This serves as a practical exercise to develop leadership and management ability.)

- Constantly prepare subordinates to attend the appropriate service schools. As a result of the NCO development policy, the supervisor at each level should know what schools are appropriate and available for his subordinates. When he thinks his soldiers are ready to go, he should make a recommendation through the NCO chain of leadership.

The first sergeant should head a board, with his platoon sergeants as members, to determine who is best qualified to attend the service schools. Then, when a soldier has been scheduled to go to a school, his immediate supervisor should see that he is ready to go. The supervisor should inspect the soldier's equipment and sign a statement certifying that inspection. The platoon sergeant should then make his inspection and sign a similar certificate. This procedure should prevent the soldier from arriving at the school without the necessary equipment. It should also serve to keep the supervisors involved in the schooling of their subordinates. (Some leaders seem to think that as soon as the soldier gets the allocation it is his problem to get ready, or that the S3 should handle it.)

If it is possible, the soldier's immediate supervisor and other NCOs and officers in the unit's chain of command should visit him while he is attending school. If they can't, they should at least try to keep in touch by mail or telephone. Some members of the chain of command should attend

0500	First call. First sergeant spot checks barracks.
0530-0630	Physical training. First sergeant forms the company and turns it over to the commander. Follows company run, supervising trail party for people who fall out. (Schedules remedial PT for after normal duty hours.)
0630-0730	Breakfast. First sergeant and platoon sergeants conduct meeting during breakfast for last-minute adjustments in the day's schedule.
0730-0800	Company formation. First sergeant rarely spends more than five minutes at this formation before he turns the platoons over to the platoon sergeants or the company to the company commander.
0800-0900	Conducts final check of orderly room and departs to conduct inspection of barracks and police of the company area.
0900-1130	Inspects barracks and visits various areas to talk with key people.
1130-1230	Lunch with platoon sergeants or platoon representative. Discusses morning activities and prepares for afternoon.
1245-1300	Midday formation. Forms company, turns platoon over to platoon sergeants or company over to company commander.
1300-1330	Checks orderly room. Returns calls received during morning.
1330-1600	Conducts meetings of boards or other activities such as duty rosters. Meets with company commander if possible.
1600-1630	Meets with platoon sergeants about next day's activities.
1630-1700	Briefs charge of quarters.
1700-1800	Evening meal. Meets with company commander if he has not done so before platoon sergeants' meeting.

the soldier's graduation and if he does an outstanding job at the school, a letter from the commander should be presented to him at a company formation.

As soon as the soldier's schooling is completed, his immediate supervisor must make sure that an appropriate entry is made on his military records.

**Counseling.** Leaders at all levels should counsel their subordinates periodically on their performance and also on personnel matters when necessary. That counseling should be put in writing as much as possible to provide a record for future action and to eliminate misunderstandings.

A counseling form must contain a space for the counselor's statement, the date, and the response from the soldier who is being counseled. The soldier's response can be either his signature on the form or a letter of rebuttal. A counseling statement is not effective if it does not contain the signature of the soldier being counseled or an official statement from a witness indicating the soldier's refusal to sign.

Supervisors should remember that letters of appreciation and commendation also come under the heading of counseling statements — they indicate superior performance, and should be used at all levels.

**Promotion.** The first sergeant must have a program within the company in which all of the NCOs are actively involved in the promotion process. Because the sergeants at every level actively train and evaluate their subordinates, they are in a position to know who should be promoted and who should not. An effective program at company level should include the following requirements:

- Immediate supervisors should write letters of recommendation for all of their subordinates when they are being considered for promotion.

- All of the intermediate NCOs within the individual soldier's chain of command should endorse these letters.

- The first sergeant should convene a company promotion board periodically to produce an order of merit list for promotion.

- When the battalion convenes a promotion board, the soldiers sent from company should be those on the company list. In addition, if allocations are made for promotion to corporal, the privates first class who are recommended by their supervisors should be the only soldiers promoted.

**Soldier's Manual training.** Three individual Soldier's Manual tasks should be tested and taught each week. These tasks should be assigned by the company commander as a re-

sult of a company training meeting. The unit schedule for each week should reflect these three tasks. The testing and teaching should be done by the squad leaders during any time they have available.

Each month, the company should schedule a mini-SQT sampling test during which the squad leaders pick certain squad members to be tested on tasks they were taught in the previous three weeks. The results should indicate which squad leaders are doing a good job.

Each unit leader has various roles to play in the unit's Soldier's Manual training program. A squad leader, for example, should test and train his squad members using the Soldier's Manual to develop their proficiency in the individual tasks. He should also use qualified squad members as peer trainers and evaluate their ability to train the others in the squad. This will help him identify potential NCOs.

The platoon sergeant should test and train the squad leaders on the Soldier's Manual tasks for their skill level. He should function as test controller while his squad leaders test Soldier's Manual tasks within the platoon.

The first sergeant should test and train the platoon sergeants on the Soldier's Manual tasks for their skill level. He should also make sure that all the NCOs in the company perform their tasks as listed above.

In addition to the tasks that are included under these general policy categories, the first sergeant has a number of other duties. The accompanying chart shows a typical daily schedule of his activities.

The schedule shown is flexible, of course, depending on the policies of higher units. The duties listed are all things the first sergeant must do daily.

Because of individual rooms and the locks on the soldier's rooms, the first sergeant may inspect only one platoon area each day of the week, or he may spot check part of each platoon each day. Since this takes place in garrison, an NCO from each pla-

toon should be standing by to accompany the first sergeant during his inspection. The NCO should make two printed copies (using carbon paper) of the inspection report, one for himself and one for the platoon sergeant.

As shown on the schedule, the first sergeant spends little time at the company formation. If he notifies the platoon sergeants during breakfast of the specific soldiers he needs to see, these soldiers should automatically fall out and form near him when he turns the platoons over to the platoon sergeants. If he turns the company over to the commander, then these soldiers should fall out to the rear of the company formation and wait for him there.

Any information that the first sergeant wants put out should be passed down to the platoon sergeants and then to the squad leaders for dissemination; this is better than having the first sergeant talk for long periods to the whole company.

Most important of all, the first sergeant should not allow himself to be stuck in his office for a full day. By using a sign-out device, he can leave word in the orderly room where he can be reached while he is on his rounds throughout the area. The ideal arrangement is to have a phone orderly or company clerk on duty with the executive officer in the company orderly room.

It is my professional opinion that the company executive officer should be primarily responsible to the commander for all the paperwork of the company in garrison (with the assistance and advice of the first sergeant and the company clerk, or the personnel action center clerical personnel at battalion level). Few documents that originate at company level should have to be typewritten. Fill-in-the-blanks and handwritten reports should be used for the most part. In short, an orderly room should not be a clerical office.

His daily duties allow time for the first sergeant to keep in touch with certain key people and to maintain his policies. The key people include not only the ones in the company; it in-

cludes people and agencies all over the post whose services are required, if the needs of the soldiers are to be properly met. The first sergeant must have the names and phone numbers of all of these people and agencies, and he should visit with them periodically. Some of these agencies are the Red Cross, the Education Center, the chaplain, Army Community Services, and the family housing office.

He should also call and arrange appointments for his subordinate supervisors and their soldiers before he sends them to these agencies, whenever it is possible.

When the first sergeant has completed his schedule and taken care of all his responsibilities, he has usually put in a 13-hour day. This does not include his social obligations. Further, the first sergeant himself must realize that this schedule leaves him little time for his wife and children and that he must plan his time away from the job as carefully as he plans his time doing it.

To be the first shirt, the top, the first soldier is a professional position that attracts the stronger and more aggressive members of the NCO corps. This is as it should be. The soldier who is the first sergeant can have a great effect on a company for good or for bad, so he must be a special breed of soldier.



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# Artillery-Delivered Mines

CAPTAIN PATRICK C. SWEENEY

The new artillery-delivered mines that have been developed by the Army have given maneuver commanders a combat capability they have not had before.

Two types of artillery scatterable mines are available in the 155mm system: The M692/M731 Area Denial Artillery Munition (ADAM) and the M718/M741 Remotely Activated Antitank Mine (RAAM).

The ADAM was designed to be used in an anti-personnel role and employs the well proven "Bouncing Betty" technique. A single 155mm projectile, for example, contains 36 wedge-shaped anti-personnel mines, which are ejected from the projectile over a target and dispersed in a fairly predictable pattern on the ground. When one of the mines strikes the ground, seven tripwires spring out to a distance of 20 feet. If one of the wires or the mine itself is disturbed, the mine detonates, causing a kill mechanism to bound up and explode sending some 600 small steel fragments in all directions.

The RAAM contains nine cylindrical antitank mines, which are dispersed in a target area in much the same manner as the ADAM. The mine is magnetically fuzed, which means that an enemy vehicle need not physically disturb it. Rather, the mine senses the magnetic signature of a vehicle that passes over it, then detonates and sends a high velocity steel slug up through the belly of the vehicle. A certain percentage of the RAAMs are produced with anti-

disturbance devices to keep an enemy from easily clearing a minefield.

As with the other members of the family of scatterable mines (FASCAM), the ADAM and RAAM mines have self-destruct (SD) times, which are preset at the factory and cannot be changed. The mines themselves have either a short duration lifetime (Short SD), which is measured in hours, or a long duration lifetime (Long SD), which is measured in days. The exact times are classified.

Authority for the employment of artillery-delivered mines has been clearly defined. Division commanders have the authority to employ both Long SD and Short SD mines. Brigade commanders have the authority to employ Short SD mines. In each case, this authority can be delegated to the next lower echelon for a specified period of time or during the conduct of a specific operation.

In addition, command levels below the one that has employment authority can recommend targets for inclusion in a higher command's obstacle plan. If these targets are approved and included in the obstacle plan, the higher command level then has the authority to delegate the execution of the plan to the user. Thus, a company commander may request and recommend that artillery-delivered minefields be included in his battalion's obstacle plan, and he may be given the authority to call for the mines if his recommendation is approved.

Normally, Long SD mines will be used only with a division's obstacle plan. Targets of opportunity will normally call for the use of Short SD mines.

When it receives the necessary clearance to fire a minefield on a target of opportunity, the supporting artillery unit will provide a standard package that consists of six ADAM projectiles (216 mines) and 24 RAAM projectiles (216 mines). These will produce a minefield 400 meters square.

The employment procedures used for planned minefields call for high and low minefield density combinations and for a variety of minefield sizes, depending on the availability of ammunition and delivery means.

Any commander who uses artillery-delivered mines, though, must realize the effects they might have on his own unit's movement. Although the self-destruct time of the mines can be considered highly reliable, normal indirect fire dispersion must be taken into account. The size of the danger area (safety zone), therefore, will vary depending on the range and the delivery technique.

## TACTICAL APPLICATION

These mines can be used in numerous ways. For instance, they can be used:

- To close gaps and lanes in other obstacles.
- To re-seed breached minefields.

- To delay or disrupt attacking enemy forces.
- To deny terrain to the enemy.
- To disrupt movement and commitment of second echelon enemy forces.
- To develop targets for long range antiarmor weapons.
- To disrupt or harass enemy command and control, logistics, or staging areas.
- To produce long-term effects in the suppression of enemy indirect fire and air defense elements.
- To reinforce existing obstacles.
- To disrupt or delay enemy river crossings.
- To isolate objectives.
- To disrupt enemy counterattacks.
- To supplement flank security.

Although the fielding of these new munitions has given the maneuver commander a valuable and versatile

new capability, it also leaves the following hazy areas for the formulators of our doctrine to examine:

- Do we consider the danger zone (safety zone) around the minefields a serious impediment to our own movement?
- Will the staff interaction required to use the mines become so cumbersome as to lessen the responsiveness or the effectiveness necessary to exploit this new resource?

• How close to a friendly position can we safely emplace artillery-delivered mines?

• What sort of mix of Long SD/ Short SD mines will the artillery units be carrying?

In the meantime, commanders at all levels must begin to integrate the use of artillery-delivered mines into their battle plans. Only then will they be able to make the fullest use of this new and novel combat asset.



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## *Soviet Armor-CW Threat*

**CAPTAIN MICHAEL T. McEWEN**

As most of us know, the Soviets' basic offensive doctrine calls for the rapid breakthrough of our defenses followed by an attack in depth on our headquarters and command installations. Soviet armor and mechanized infantry capabilities have been known and talked about for some time. In addition, recent events in Afghanistan have reminded us that the Soviets not only have but use an arsenal of chemical warfare (CW) weapons. But perhaps we have not given enough thought to the way they can combine their armor and CW

capabilities to achieve the kind of breakthrough their doctrine calls for.

There seems to be little doubt that the Soviets are equipping and training their soldiers for combined armor and CW operations. It is estimated that as much as 50 percent of the missiles and bombs stockpiled by the Warsaw Pact forces in eastern and central Europe are CW munitions.

The delivery systems for these munitions are also impressive. In addition to aircraft and conventional artillery, the Soviets have multiple rocket launchers (MRLs) that seem

to be especially suited for CW operations. The BM-21 mobile system, for example, is often deployed in battalion-size groups of 20 launchers. Such a unit is capable of delivering 480 rounds on targets up to 20 kilometers away within 30 seconds.

Soviet armored vehicles are equipped for CW operations. Their crews are trained in vehicle decontamination procedures and in the operation of their sophisticated CW detectors, which are mounted in tactical and chemical reconnaissance vehicles. In addition, Soviet tanks and



armored personnel carriers are equipped with protective seal-out liners and air filters, and a wide range of decontamination equipment is available to them.

Soviet armor and mechanized infantry units also have the support personnel they need to conduct CW operations. A battalion of CW specialists is assigned at the army level, and a chemical company is assigned to each armor, motorized rifle, and airborne division. These specialists back up the troops who actually wage chemical warfare — those who deliver the CW munitions on target.

In the 1,000 or so CW training sites in the USSR, troops train in "contaminated" environments, frequently use smoke in their exercises, and practice CW offensive operations at night. In addition, the Soviets use diluted toxic agents such as mustard gas in training so that their troops will learn the consequences of incorrectly using their protective equipment.

With all of this equipment and training, it is clear that the Soviets could use chemical warfare to support an armor breakthrough. But even though they have the ability to operate in a contaminated environment, they probably will not choose to do so if a simpler option is available — and there certainly is such an option.

By employing a lethal, non-persistent agent such as hydrogen cyanide, the Soviets could incapacitate all the unprotected personnel in a defensive position without having to deal with troublesome or time-consuming decontamination, because hydrogen cyanide is a hazard for only a few minutes. Using a saturation delivery system such as the BM-21 MRL, the Soviets could significantly soften their breakthrough targets without slowing the pace of their attack. For these reasons, this type of armor-CW attack must be seen as one of their top options.

Fortunately for us, the defense against an attack that employs such low-persistence CW agents is relatively simple. The NBC defense that

is selected for units along the FEBA will depend, of course, on many considerations, and the particular Mission Oriented Protective Posture (MOPP) the commanders choose will reflect their best estimate of the likely threat. It would seem prudent, though, for them to adopt at least MOPP Level 1 if their units occupy a position that is a likely candidate for an armor-CW breakthrough attack. With MOPP-1 protection their troops would be secure from a simple attack with hydrogen cyanide or a similar low-persistence blood agent. (See FM 21-40 for a complete description of MOPP selection and implementation criteria.)

To prepare our troops to defend against a Soviet armor-CW threat, we must train them in the several key NBC techniques covered by the 11B/C tasks listed in the accompanying table.

TASK NUMBER	TASK TITLE
092-503-1001	Perform operator's maintenance on an M-17 series protective mask.
1010	Exchange filters on an M-17 series protective mask.
1002	Put on and wear a protective mask.
1009	Satisfy personal needs in a chemical environment.
081-831-1017	Administer antidote to a blood agent casualty.
1009	Apply artificial respiration to a chemical-agent casualty.
092-503-1004	Recognize and protect self against a chemical/biological (CB) hazard.
3008	Implement mission oriented protective posture.
3002	Initiate unmasking procedures.
1106	Prepare automatic chemical agent alarm for operation.
1107	Perform automatic chemical agent alarm shutdown operations.

But training in these CW defense skills alone will not prepare our soldiers to withstand an armor-CW attack. The CW defense measures must also be integrated into the various normal defensive fighting routines that the soldiers will use. We should therefore schedule frequent concurrent training to see that our troops use their CW skills while they are training for their primary missions.

Antiarmor units in particular need to train their soldiers to use their weapons while wearing protective masks. In addition, weapon crews should try to work out SOPs that will allow the most appropriate member of each crew to act as a CW monitor whose job is to assure that all the necessary precautions are being taken.

Although training for all kinds of NBC defense is important, it is especially worthwhile for us to concentrate on first things first by preparing to meet a Soviet armor-CW breakthrough threat.

If we take concurrent training seriously and prepare our troops to resist the simplest forms of armor-CW attack, then we will be able to deny the opposing force an important advantage. We will be able to survive its attacks, or at least we will be able to slow down its breakthrough efforts by forcing it to escalate to a more complex level of CW operations.



**CAPTAIN MICHAEL T. McEWEN**, an Infantry officer, is now serving with a public affairs detachment in the Oklahoma Army National Guard. Formerly he was a platoon leader in the 2d Battalion (TOW), 180th Infantry. He is a graduate of the Officer Candidate School (OKARNG) and holds a master's degree in political science from the University of Oklahoma.

# Civilian Schooling

MAJOR WAYNE SHARP

MAJOR PHILLIP RICHEY

To support its requirements for trained officers, the Army must make a continuing effort to advance the education of all its personnel. But not all of this education can be accomplished through the Army's service schools, and since 1946 much of it has been conducted instead by civilian institutions under the Army Civil Schools (ACS) Program.

Initially only a graduate degree program, the ACS Program was later expanded to include other levels of education. As it is today, it includes a number of different programs designed to make sure that each warrant officer has at least an associate degree in a field related to his specialty; that each commissioned officer has a baccalaureate degree; and that selected commissioned and warrant officers obtain advanced degrees to meet the Army's needs as validated by the Army Education Requirements Board (AERB).

Several fully funded and partially funded programs have been developed to support these civilian education goals. The fully funded programs provide full-time schooling for up to two years. The Army pays all tuition and fees and allows for the reimbursement of up to \$200 per fiscal year for textbooks and supplies. The officer draws full pay and allowances while participating in one of the programs and is authorized a permanent change of station (PCS) to attend school.

The partially funded programs also authorize full pay and allowances, but the service member must pay all

expenses for tuition, fees, and textbooks.

The following fully funded programs provide the major source of degrees in scientific, engineering, and other "hard skill" shortage disciplines for the Army:

**The USMA Instructor Program** provides graduate training at the appropriate level for officers who are selected to serve on the faculty or staff at the U.S. Military Academy. Future faculty members attend up to two years of schooling, and non-teaching staff members attend 18 months or less.

**The USMA and ROTC Top Five Percent Program** allows the top five percent of USMA and ROTC graduates, as selected by a board, to pursue graduate civilian schooling. Selected cadets may attend such schooling any time during their fourth through tenth years of commissioned service, provided their performance of duty and demonstrated potential are equal to those of other officers considered and selected for the ACS program.

**The Funded Legal Education Program** provides up to three years of law school for officers who are in their second to sixth years of service, after which they are assigned to the Judge Advocate General Corps. The law school admission test is required for application. (This specialized program is governed by AR 351-22.)

**The Training with Industry Program** provides for the training of Army personnel in civilian industrial procedures and practices. It is de-

signed to train selected officers to fill positions of significant responsibility in Department of the Army commands and activities that deal with civilian industry. The training lasts for one year and is followed by a three-year specialty sponsored utilization assignment.

**The Advanced Civil Schooling Program** provides for Army officers (with the exception of medical officers) to attend civil schooling in support of validated AERB requirements. The program determines and allocates quotas in shortage disciplines to the three assignment divisions of MILPERCEN, the Office of the Chief of Chaplains, and the Judge Advocate General. Each participant in the program normally attends school for up to 18 months and must agree to serve a three-year utilization tour in a validated AERB position immediately following the schooling. (Army Regulation 621-1 governs this program.)

**The Warrant Officer Associate Degree Program** provides for as many as 68 warrant officers to attend classes each year in support of their specialties.

**The Short Course Training Program** provides tuition funds for unprogrammed training in a variety of fields when such training is conducted by universities, federal agencies (on a reimbursable basis), and civilian organizations. The training must be less than 20 weeks in duration, must be deemed necessary to the officer in performing his immediate duties, and must be ap-



proved by the Department of the Army under the provisions of AR 621-2. Tuition for such courses is funded by MILPERCEN, while travel and per diem are funded by the participant's parent organization. Participants incur no active duty service obligation, with the exception of the colonels who attend the Advanced Management Training Course under the provisions of AR 351-23.

In addition to these various programs, the Army has a program for officers who are awarded fellowships, scholarships, or grants by tax exempt corporations, foundations, or schools that operate primarily for scientific, literary, or educational purposes. Although the Army does not pay tuition and other educational expenses, all of the other rules for fully funded programs apply, except that no AERB utilization assignment is required. (AR 621-7 governs this program.)

#### Partially Funded Programs

The Army also has several partially funded civilian education programs that give its officers an opportunity to get degrees at a minimum cost in time and money to them and to the Army.

These are the Degree Completion Program (DCP) and the Cooperative Degree Program (COOP), both governed by AR 621-2, and the Advanced Degree Program for ROTC Instructor Duty (ADPRID), which is governed by AR 621-101.

**The Degree Completion Program** gives selected officers an opportunity to complete their remaining degree requirements (either baccalaureate or master's) by attending a civilian academic institution on a full time basis. The DCP serves as an incentive for the officers to begin working toward their degrees during their off-duty hours in preparation for full-time study under DCP later. The applicants must have scholastic aptitude and career potential. Although 18 months are authorized for completion of the degree, most students are limited to 12 months, and many finish in six or less.

**The Cooperative Degree Program** is

one in which civilian academic course credit toward a master's degree is awarded by an accredited college or university for a combination of Army and civilian course work. It consists of three key elements:

- Academic credit is granted by a civilian college or university for portions of a service school's course of instruction.

- Civilian college courses are taken in conjunction with a service school's course of instruction.

- Civilian college courses are taken before or after a service school's course of instruction.

Cooperative degree programs are conducted at the U.S. Army Command and General Staff College, the U.S. Army War College, the Industrial College of the Armed Forces, and the U.S. Army Logistics Management Center. The length of these programs is limited to the length of the service school's course of instruction with which they are associated, plus six months.

**The Advanced Degree Program for ROTC Instructor Duty (ADPRID)** is designed to upgrade the academic qualifications of officers who have been selected for ROTC instructor

duty and to provide them with greater assignment stability. Under the program, an officer who does not have an advanced degree can be sent to school (normally to the institution where he will be assigned) for up to 15 months to complete his degree requirements. The program of study must be in an AERB validated shortage discipline and must support one of the officer's specialties. The schooling is followed by a three-year ROTC assignment.

In addition to these programs, officers who have completed all but their final residence requirements for an advanced degree may apply for full-time study for up to 139 days on a permissive temporary duty (TDY) basis. All the provisions of the DCP and the other partially funded programs generally apply.

Application procedures for the various civilian school programs are explained in the applicable regulations. (AR 621-1 covers most of the programs.)

Anyone who wants more information on the civilian education program may write to MILPERCEN or call AUTOVON 221-0685/8100 or commercial (202) 325-0685/8100.



**MAJOR WAYNE SHARP** is assigned to U.S. Army MILPERCEN as a military education officer. He is a graduate of Kansas State University and holds a master's degree from Northwest Missouri State University. He has served in several assignments in artillery units and also as Assistant Professor of Military Science at Missouri Western State College.

**MAJOR PHILLIP RICHEY**, also assigned to MILPERCEN, is a program resource officer. He is a graduate of Oregon State University with a master's degree from Georgia State University. He has served as an Assistant PMS at the University of Oregon, as a battalion S3 and a company commander in Alaska, and as a rifle platoon leader and LRRP platoon leader in Vietnam.

# ENLISTED CAREER NOTES



## BRANCH CHIEF'S COMMENTS

As your new branch chief, I assure you that we in the Infantry/Armor Branch will continue to accomplish our mission of assigning and managing Infantry, Armor, Ranger, and Special Forces enlisted soldiers in accordance with the Army's priorities and policies.

All possible consideration will be given to the professional development of each soldier and to his personal requests. There will be times when the overriding rationale for a decision must be Army priorities or policies. In these cases, we will respond as quickly as possible and provide you with the reasons for our decisions.

We will continue to use these Career Notes to pass on items of interest and information concerning your professional development as Infantrymen.

I would like to take this opportunity to welcome and to introduce the newly assigned Branch Sergeant Major/Professional Cell Chief, Master Sergeant (Promotable) Glen C. Sherwood Jr. He was reassigned to MILPERCEN in August after his graduation from the U.S. Army Sergeants Major Academy.

**LTC TOMMY F. GRIER JR.**

## RANGER VACANCIES

There are presently Ranger vacancies in the 1st Battalion (Ranger), 75th Infantry, at Fort Stewart, Georgia, and in the 2d Battalion (Ranger), 75th Infantry, at Fort Lewis, Washington. These vacancies are primarily for soldiers in the following ranks and MOSs: PV1-PFC, 05B, 11C; PFC-

SSG, 11B; SGT/SP5-PSG/SFC, 13F; SSG, 31V; SSG-PSG/SFC, 94B.

To be eligible, a soldier must be Ranger-qualified or must volunteer for Ranger training and submit a DA Form 4187 requesting assignment to the unit of his choice. Applications or volunteer statements must be forwarded through command channels to DA MILPERCEN, ATTN: DAPC-EPK-IS, 2461 Eisenhower Avenue, Alexandria, VA 22331. Branch points of contact are SFC Kinsley or Mrs. Dansby, AUTO-VON 221-8340/9568.

## SPECIAL FORCES LINGUISTS

Special Forces (SF) qualified soldiers and SF volunteers are reminded that they should establish their aptitude for foreign language training by completing the Defense Language Aptitude Battery Test (DLAB), in accordance with AR 611-6.

## SF/RANGER PT REQUIREMENTS

The following are the physical training requirements for the Special Forces and Ranger courses:

### Common Course Requirements

EVENT	REPETITIONS	TIME LIMIT
Pushups	45	2 minutes
Situps	45	2 minutes
Run	2 miles	15 minutes, 59 seconds

In addition to these events, there are 3 events in the combat water survival test, which is also required. These events are:

- **15-Meter Swim.** Applicant swims 15 meters with soft cap, fatigues, boots, pistol belt, first aid pouch, two canteens filled with wa-

ter, two ammunition pouches, harness, and rifle.

- **Equipment Removal.** Applicant enters water at a point where water is over his head, then surfaces, composes himself, submerges, removes harness, drops weapons, and swims to side of pool.

- **Three-Meter Drop.** Soldier enters water blindfolded, surfaces, composes himself, removes blindfold and swims to side of pool.

### Specific Ranger Requirements

EVENT	REPETITIONS
Chinups	6
Road March (IAW AR 672-12, Paragraph 3-2b)	

In addition, DA Form 705 (APRT Scorecard) must accompany the application. The PT requirements must be completed within 30 days of the submission of the application. Furthermore, upon arrival, soldiers are required to re-take the PT test. Commanders, therefore, should ensure that the applicants are fully capable of passing these minimum requirements.

## CLUB MANAGERS

The Army is looking for sergeants in the ranks of SGT/SP5, SSG, and PSG/SFC to fill openings in its club management career programs.

Applicants must have less than 16 years of service and must have some previous experience in food service, business administration, or financial management.

Upon being accepted for the program, applicants will receive on-the-job training in a club manager position before attending the nine-week club management course at Fort Benjamin Harrison, Indiana.



Following a three- to six-month probationary period, they will receive a primary military occupational specialty (PMOS). Their training and education will continue throughout their careers with executive-level courses, if they qualify.

Anyone who is interested in this dynamic career field should contact his local personnel office for details or call the Club Management Section, MILPERCEN, AUTOVON 221-0232, commercial 703/ 325-0232.

## NEW EER

Effective 1 October, several changes have been made in the Enlisted Evaluation Reporting System. Two policies have been modified, the report form has been simplified, and the regulation has been revised and consolidated to govern the Active Army, Army National Guard, and the Army Reserve. These changes are designed to improve the current system instead of devising a whole new system.

One policy change concerns the minimum grade requirements for raters. Formerly, the rater had to be senior to the rated soldier by at least one grade. That policy has been modified to permit the appointment of a rater who is senior, either by grade or by date of rank.

The other policy change concerns the 30-day minimum period required before a relief-for-cause EER can be submitted. A general officer in the

chain of command (or the general court-martial convening authority) may now waive the 30-day minimum and authorize the writing of the relief report, if the relief is for a clear-cut case of misconduct. The 30-day minimum period still applies, however, for other types of relief actions.

The simplified report, DA Form 2166-6, has replaced the former SEER, DA Form 2166-5A. The specific content of the new form has been modified and reorganized to emphasize three areas:

- **Duty Performance.** The duty description should present a clear, concise word picture of the rated soldier's actual functions, including an explanation of the scope of his responsibility.

- **Performance Narrative.** This section must comment on specific aspects of performance. The narrative should describe what the rated soldier did during the report period and how well he did it. Specific items of professional competence or standards which require amplification may also be included. This section should not be used to comment on the rated soldier's potential or to recommend what should happen in the future.

- **Potential Evaluation.** The new form requires specific narrative comments on the rated soldier's potential for promotion, schooling, assignment, and increased responsibility.

The initial distribution of the new forms and the revised regulation has

already begun. Additional copies of both may be requisitioned, as needed, to supplement the first stock received.

## NEW ENLISTED PROMOTION REPORT

A new, more comprehensive C01 Enlisted Promotion Report will soon replace the old C01 report, which was more commonly called the E2/E3 Progression Roster. Current programming calls for the new report to be available in January 1982.

The new report features a more detailed appearance than the old one. It consists of five parts:

- Part 1 lists the names of personnel who are eligible for advancement to PV2 and PFC without waiver.

- Part 2 lists personnel who are eligible for advancement to PV2 and PFC with waiver.

- Part 3 lists personnel who are not to be advanced to PV2 or PFC and gives the reasons why they are not.

- Part 4 lists personnel who are eligible to be considered for promotion to the ranks of CPL/SP4, SGT/SP5, and SSG with and without waiver.

- Part 5 contains a listing of the transactions for the finance and accounting office (and punch cards). These transactions are for the soldiers whose names are displayed in Part 1.

DA Pamphlets 600-8-2 and 600-806 contain an in-depth description of the new report.



# OFFICERS CAREER NOTES



## BRANCH CHIEF'S COMMENTS

The end of 1981 finds the summer rotation cycles complete with the arrival at installations in CONUS and overseas of officers who have been reassigned for that period. I trust that the assignment process has provided the best qualified personnel to fill Army and Infantry requirements. For those who are attending staff and senior service schools, we are beginning the process of making post-school assignments. These will be made according to the Military Education Level (MEL) distribution plans (MEL 1 for senior service colleges; MEL 4 for staff colleges).

The end of 1981 also finds our assignment officers involved in filling Army overseas requirements for the summer of 1982, a process we begin 10 months in advance. (If an officer has an army overseas assignment he has an express desire to serve in, he should notify his assignment officer.) We will soon begin contacting officers who are approaching 36 months on station in their current assignments and those who are in a promotable status.

Many of our CONUS assignments are to the CONUS training base, a very important part of our Infantry family. A note follows on that type of duty for lieutenants and captains, and we would like to hear your comments on it.

Preference statements are important in the assignment process. Assignment officers routinely review officer preference statements when making assignment decisions; often, though, they are hampered by the lack of an automated connection between officer preference statements and the other management tools available to them.

Soon we will be able to store preference data for each officer (warrant and commissioned) on the Officer Master File (OMF). Any officer whose preference statement (DA Form 483) has not been kept current as specified in AR 614-100 should submit an updated version before 1 January 1982 so it can be loaded into the OMF and used to screen their preferences before officers are nominated to fill assignments. If an officer does not submit a new statement by the deadline, the data from his most recent form on file will be loaded.

A mark-sense preference form is now being developed to replace the present DA Form 483, and this form will be field-tested next year. Beginning in early 1982, assignment preferences will be printed on the Officer Record Brief (ORB) so each officer can check it during his annual ORB audit. (This data will be blanked out for promotion board ORBs.)

In the next issue we will include items on the ODP and the assignment process.

**LTC JAMES A. SULLIVAN**

## MEL 1 AND 4 PLANS

Graduates of senior service college and command and staff college schooling are valuable, sought after resources. It is MILPERCEN's mission to ensure that the education and experience gained by these graduates are equitably distributed to major commands (MACOMs) and agencies in accordance with established priorities. This equitable distribution is accomplished through the Military Education Level (MEL) 1 distribution plan for senior service college graduates and through MEL 4 plans

for command and staff college graduates.

The MEL 1 and 4 distribution methods are based on two elements: the 80 percent "floor" and "fair share" distribution. This methodology recognizes that the Army's need for SSC and CSC graduates exceeds the number available.

The first element in developing the plan is to compute the 80 percent "floor." The floor is defined as 80 percent of the Army-wide percentage of MEL 1 and MEL 4 qualified officers by grade. For example, if 40 percent of all majors are qualified at MEL 4, then 32 percent (80 percent of 40 percent) of the majors at each MACOM should be at MEL 4. Once a command floor is established for all MACOMs and agencies, the officer management divisions of MILPERCEN assign MEL 1 and MEL 4 officers to meet the command floor. The distribution of these officers is a once-a-year effort that ensures that command floors are achieved.

The second step of the plan is to proportionately distribute the remaining MEL 1 and 4 officers, those who are not committed to the 80 percent floor, on a "fair share" basis to the MACOMs.

Some of the guidelines used in MEL 1 and 4 distribution are:

- Only a portion of all MEL 1 and 4 officers available for assignment are formally distributed against the plan. The remainder are assigned in accordance with the current needs of the Army. The number of MEL 1 and MEL 4 qualified officers to be distributed is based on 100 percent of the Army War College (AWC) class and 80 percent of the Command and General Staff College (CGSC) class, respectively.
- The MEL 1 plan distributes



other lieutenant colonels separately from colonels, promotable lieutenant colonels, and lieutenant colonels in the primary zone.

- Graduates of other than the AWC and CGSC may be distributed against the plan as required. However, initial attempts are made to distribute recent graduates at MEL 1 and MEL 4.

Distribution plans for MEL 1 and 4 officers are developed annually by mid-October by the Officer Distribution Division. Assignment officers match officers to requirements during October and November and notify resident students of their post-graduation assignments in early to mid-December.

## TRAINING CENTER TROOP DUTY

Today's Army provides company grade officers with a variety of units in which to serve. Most, if not all, Infantry officers think that the only road to success is serving in a TOE unit. But officers who maintain this viewpoint are soon disillusioned, because there are simply too many company grade officers and too few TOE Infantry positions. But there is an alternate path to success — serving in a TRADOC troop unit.

The success of any unit is based on the quality of training it conducts, and in a peacetime Army effective training is the primary mission. This effective training not only applies to units but to the professional development of officers as well. A TRADOC Initial Entry Training (IET) unit assignment is rewarding, and it also improves the skills an officer needs to advance in the Army. It is a tough, demanding, and challenging assignment, but its positive aspects greatly improve an officer's professional development and make his job very rewarding.

In an IET company an officer is able to refine several leadership and managerial skills that will help him develop to his potential. Some of the following apply to any officer in an

IET company, while others apply chiefly to the commander.

**An officer learns how to train today's soldiers.** The profile of today's typical volunteer soldier has changed. He is young and may or may not have a high school diploma, but he is ready to train and is motivated to become an Infantryman. Understanding how to train these young men is a necessity, and by the very nature of his job an IET officer receives a lot of experience in this area. He begins his duty with an established and tested program of instruction. Throughout his tour, he can see the changes in the POI being developed and implemented to improve the quality of the Infantrymen who are produced. He is faced with developing a unit training program that prepares the soldiers for their final APRT and MOS qualification tests. He refines this program each cycle on the basis of test results, innovations, and lessons he has learned.

**He improves his ability to motivate and influence soldiers.** Taking a group of civilians and turning them into highly disciplined, proud, physically fit, and proficient Infantry soldiers in 12 weeks is a demanding task. Accordingly, an officer must develop a sense of pride, esprit, and morale in the soldiers he leads.

The IET company is the first real contact these soldiers have with the Army. The values and impressions they form during this critical period are the building blocks their next unit will use to continue the education process. Motivating and influencing these soldiers starts with their first day in the unit and continues throughout the cycle. An IET company officer orchestrates a program that is aimed at maintaining high morale, positive attitudes, and incentive awards for good performance. He learns to manage this process so that motivation and spirit peak during final testing. Motivating soldiers is an art, and an officer becomes well versed in this process.

**He learns the skills the soldiers have to know.** Two of the most basic prin-

ciples of leadership are that a leader must be tactically and technically proficient and must lead by example. This means that an officer must know the skills he has to teach his subordinates. While only 53 Soldier's Manual tasks are taught to Skill Level 1 proficiency, the officer's knowledge of many other tasks is improved by the requirement to develop make-up and reinforcement training programs. This constant exposure to training enables an officer to become extremely proficient at all training tasks and to keep abreast of what soldiers must know to be qualified Infantrymen.

**He expands his leadership techniques.** An IET company is a professional environment in which an officer works and communicates with the elite of the NCO corps. The good, experienced senior noncommissioned officers who are selected for drill sergeant duty constitute a tremendous base of knowledge and expertise on which an officer can draw. Through a professional exchange process, expedited by the close working relationships possible in a small cadre, an officer experiences and masters new techniques in aspects of leadership that have been tested and proved effective in the past.

**He learns to manage assets efficiently.** The commander of an IET company is given the opportunity to expand and refine his ability to manage time, money, equipment, and manpower. Time, normally the most elusive asset, is limited; he has only 12 weeks in which to train, motivate, and graduate proficient and physically fit Infantry soldiers.

The task of managing time is further complicated by limited manpower. Although an IET company is authorized a permanent party strength of 17 cadre members (24 if it has a company dining facility), its normal operating strength is only 14 members. With these few the commander must feed, billet, and train 240 new soldiers. This becomes a real leadership challenge, because he has only two or three drill sergeants to control 60 soldiers in each of the four

training platoons.

An IET company commander controls and manages more than \$400,000 a year in monetary assets. He must develop a long-range expenditure program that will correspond to his training program.

Finally, an IET commander is faced with developing and implementing a program to control, use, and safeguard his assigned equipment and real property. This responsibility is demanding in any unit, but it is further complicated in a training unit by the transient flow of 1,000 trainees each year. An IET company commander further refines his managerial skills through dealing with the complexity of the dynamic environment in which these assets must be controlled.

**He learns effective counseling.** An IET commander is presented with numerous personal problems during the course of any training cycle, and he becomes involved in counseling soldiers daily. With each cycle his counseling abilities sharpen along with his skill in focusing on the real

problem in each instance.

**He learns how to use outside agencies to solve or identify problems.** A commander works closely and becomes well acquainted with agencies such as the Community Mental Health Activity (CMHA), Occupational Therapy, psychiatric facilities, and the chaplain section. Armed with these tools, with his continuous counseling experiences, and with the wide range of problems that he faces, he hones his counseling abilities to perfection. This expertise will remain with him throughout his career and will prove to be an invaluable asset.

**He masters administrative discharges.** Because about 10 percent of IET soldiers fail to complete their training for a variety of reasons, an IET commander becomes involved with the entire spectrum of discharge actions. He becomes proficient with the provisions of AR 635-200 and with the procedures required to document each type of discharge. This aspect of command teaches him a necessary skill that he will use throughout his military career.

**He learns to work toward the One-Army Concept.** The 1st and 2d Infantry Training Brigades at Fort Benning participate each year in the Reserve satellite program. The IET commanders in the brigades are responsible for training an Army Reserve unit at least four or five times a year. This training exercise broadens a commander's understanding of the Reserve program and the One-Army Concept. He becomes acquainted with the strengths and weaknesses of the Reserves and with their operating procedures.

These skills are only a few of those learned and mastered by officers who command or serve in an IET company, and they are important to each officer in developing his professional expertise for subsequent assignments.

Training today's soldiers is a rewarding and beneficial experience, and a career officer who cannot get to a TOE unit has lost nothing by being assigned to a training unit instead. The door of opportunity is ready to be opened.

## RESERVE COMPONENT NOTES

### ASSISTANT PMSs

As part of an effort to increase the number of officers commissioned through the Reserve Officers Training Corps (ROTC) program, several long-tour spaces have been designated for majors and captains on four-year active duty tours (Active Guard Reserve status) to serve as Assistant Professors of Military Science (APMSs).

Fifty newly established APMS positions at ROTC host institutions have already been filled by Reserve officers on long tours of two to four years. Most of those selected for the new jobs reported for duty as training advisors at ROTC advanced camps this summer, and all of those selected are continuing their APMS roles this fall on campus.

In supporting the ROTC Expand-the-Base Plan, which is designed to

increase annual ROTC officer production by more than 30 percent (to 10,500 by 1985), officials in the Reserve Components Personnel and Administration Center (RCPAC) plan to fill an additional 50 APMS slots with long-tour officers in each of the next two years.

Besides their teaching duties at host institutions, the selected officers will be responsible for persuading ROTC cadets to join local Reserve units as part of the Simultaneous Membership Program. Each will also serve as his school's official ROTC point of contact for area Reserve units.

To be eligible for long tours as APMSs, Reserve majors and captains who are members of the Individual Ready Reserve or Troop Program units and are not already on Active Guard Reserve status should

apply for the long-tour management program as soon as possible. Those who are already in the long-tour program must have completed at least two years in their current positions before beginning their APMS assignments.

Applicants must have bachelor's degrees, must have graduated from an officer's advanced course, and must have highly competitive performance evaluations. Master's degrees and Command and General Staff College attendance are also desired but not required.

For more information about the long-tour program for Assistant Professors of Military Science, Reservists should call AUTOVON 693-7427 or commercial 314/263-7427, or write to RCPAC, ATTN: AGUZ-LTO, 9700 Page Blvd., St. Louis, MO 63132.



# BOOK REVIEWS



**THE COMING END OF WAR.** By Werner Levi (Sage Publications, 1981. 183 Pages). Reviewed by Major John C. Spence III, United States Army Reserve.

This book could be appropriately subtitled "Why the Nuclear Superpowers Have Not Gone to War Since 1945." Levi, a professor of political science at the University of Hawaii, presents convincing arguments in this concise and well-written book why nuclear war, at least between the United States and the Soviet Union, is not a realistic military scenario.

His thesis is that nuclear war can have little, if any, tangible military results and would be highly disruptive of the growing interdependence of modern developed states. He bolsters his thesis by further comparing and contrasting U.S. and Soviet theories on the strategy of deterrence in terms of plausibility. Most significantly, he stresses the fact that during the ideological conflicts during the Cold War era, the two superpowers resolved their differences short of resorting to nuclear warfare.

Levi also points out that there have been significant changes in international politics since 1945. These changes include the growing economic and social interdependence of nations because of their use of such supranational agencies as the European Common Market, the demise of a bipolar world, and the new emphasis that has been placed on international law.

He is quick to admit, though, that there is a lack of economic interdependence and cohesion among the less developed or developing states in the world community, and that it is in this area that there is the continued danger of conflict.

**THE FALL AND RISE OF THE PENTAGON: AMERICAN DEFENSE POLICIES IN THE 1970s.** By Lawrence J. Korb (Greenwood Press, 1979. 192 Pages). Reviewed by Colonel James B. Motley, National Defense University.

The author is a professor of management at the United States Naval War College and in this, his latest book, focuses his analysis on the internal and external challenges that confronted the civilian and military leaders in the period between 1969 and 1974.

It is a well-written book, and the author makes excellent use of assorted figures and tables to emphasize specific points and to depict comparative data. Organized into six chapters, it discusses the men who occupied the position of Secretary of Defense and those who made up the Joint Chiefs of Staff.

Korb argues that the backgrounds and styles of those men fitted the circumstances of the changed environment that confronted the military services and concludes by suggesting that "a new set of challenges" faced the Department of Defense in the immediate post-Vietnam War period — the Soviet challenge, restraining the Congress, and resolving the military pay system.

This book is recommended for those individuals who are concerned with national security issues.

**DON'T SETTLE FOR SECOND: THE LIFE AND TIMES OF CORNELIUS C. SMITH.** By Cornelius C.

**NOTE TO READERS:** All of the books mentioned in this review section may be purchased directly from the publisher or from your nearest book dealer. We will furnish a publisher's address on request.

Smith, Jr. (Presidio Press, 1977. \$14.95). Reviewed by Lieutenant Colonel Seymour Samuels III, United States Army.

Without a doubt, the subject of this biography was an important man in his time. He was awarded the Medal of Honor at the age of 22 for his actions during the Indian Wars. He took part in the early involvement of the U.S. Army in the Philippines and he served there as a leader of both U.S. and Philippine troops. He later served as the governor of the province of Mindanao, where he demonstrated his ability to act in a civil as well as a military capacity.

During the early part of World War I, he served as the military attache to two Central American countries, and after he retired he became a technical director to motion picture studios, a writer, and president of the election board of Granada, Nicaragua.

The main value of the book lies not in the description of the man but in our ability to see an era through him. It also lets us see how many of our military institutions evolved even as attitudes about the officer corps remained fixed. It deserves a place on the military bookshelf.

**ARMIES AND SOCIETIES IN EUROPE, 1494-1789.** By André Corvisier. Translated from the French by Abigail T. Siddall (Indiana University Press, 1979. 209 Pages. \$15.00). Reviewed by Leroy Thompson, Festus, Missouri.

As the title of this book implies, it examines the relationship between European armies and the societies they protected during the 16th, 17th, and 18th centuries. The armies are viewed as self-contained microcosms of the societies they represented, and

the author, on the history faculty at the Sorbonne, places particular emphasis on the influence of geography on the recruitment of soldiers, the social classes from whence they came, and class and ethnic considerations in promotion procedures.

The reader will also find information on how taxes were levied to support the armies, the methods of recruitment, the rates of pay, the systems for supplying and administering the troops, and the enforcement of military discipline.

In general, though, this is a work with a broader scope, concerned as it is with tracing the development of professionalism in the European armies of the times as a direct result of the growing technological sophistication of the profession of arms.

The book mentions battles and campaigns only in passing. It is recommended for most readers because of the insights the author offers into what the men — particularly the common soldiers — were like and why they fought as they did.

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**KOREA, 1950, and KOREA, 1951-1953** (U.S. Army Center of Military History, 281 pages and 328 pages, respectively).

These pictorial histories record briefly by text, maps, and photographs the Korean conflict from June 1950 to the end of hostilities in July 1953. Originally printed in 1952 and in 1956, respectively, they provide an accurate outline of the major events of the conflict. They focus mainly on the operations of the United States Army while summarizing the achievements of the other U.S. military forces and the other United Nations forces.

Both are softbound and may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20403:

Korea, 1950 S/N 008-029-00118-7 \$7.50  
Korea, 1951-1953 S/N 008-029-00117-9 \$8.00

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**INTELLIGENCE REQUIREMENTS FOR THE 1980s: ELE-**

**MENTS OF INTELLIGENCE.** Edited by Roy Godson (National Strategy Information Center, 1979. 91 Pages).

**INTELLIGENCE REQUIREMENTS FOR THE 1980s: ANALYSIS AND ESTIMATES.** Edited by Roy Godson (National Strategy Information Center, 1980. 223 Pages). Both books reviewed by Dr. Joe P. Dunn, Converse College.

We have seen an unprecedented outpouring of information about the United States intelligence establishment during the last decade. Monographs, memoirs, biographies, exposes, and two major Congressional investigations have attracted widespread attention (and concern in some circles) as well as adding a vast amount of unclassified information to the public domain.

In April 1979, the National Strategy Information Center sponsored the founding of the Consortium for the Study of Intelligence to improve the study of U.S. intelligence operations.

These are the first of a projected five volumes to arise from conferences on the subject. They consist of papers by leading experts followed by summaries of the ensuing discussions. For the most part, the quality of the selections is excellent, valuable for both the expert and the layman. While the papers are not a monolithic collection and disagreements between the participants abound, most authors believe that the capacity of the United States must be improved in all areas to meet an increasing world threat.

Recent actions such as Executive Order 12036, the Hughes-Ryan Amendment, and aspects of the Freedom of Information Act have placed severe restrictions on the establishment, and the authors generally believe that these actions should be rethought. But the intelligence establishment itself can do much to strengthen its performance.

This is a collection that should be widely read and taken seriously.

**MUDDY GLORY: AMERICA'S "INDIAN WARS" IN THE PHILIPPINES, 1899-1935.** By Russell Roth (Christopher Publishing House, 1981. 281 Pages. \$12.95). Reviewed by Professor Benjamin F. Gilbert, San Jose State University.

The Philippine Insurrection, which began in 1899 and lasted until 1902, ranks as one of the nation's forgotten and unwanted wars. Well-armed Filipino insurgents, numbering about 30,000, had been fighting against Spain's rule since 1896. Because they expected to gain immediate independence, the insurgents allied themselves with the U.S. forces during the Spanish-American War. After Spain ceded the Philippine Islands to the U.S. in December 1898, the insurgents, led by General Emilio Aguinaldo, turned against the United States.

Friction between the insurrectionists, who held the island of Luzon except for Manila, and the Americans culminated in open hostilities on 4 February 1899. The Americans initially captured Caloocan, just north of Manila, and then pushed on to Malolos, The Filipino capital, which fell on 31 March. Aguinaldo then withdrew to Tarlac in north central Luzon.

After the insurrection entered its guerrilla phase, Tarlac was taken in November and Aguinaldo fled to northeastern Luzon. Frederick Funston, commanding a Kansas infantry regiment, won a Medal of Honor for his daring maneuvers on Luzon and was promoted to brigadier general. He later devised a plan that resulted in Aguinaldo's capture in March 1901.

Although most of Aguinaldo's followers then lay down their arms, a number did not and continued to fight for another year. Some, like the Jolo Moros, were not subjugated until many years later.

The author, an experienced journalist who saw military service in Southeast Asia, has written a detailed account of the warfare in the Philippines. Based largely on original source materials, the book vividly



shows how the ordinary American soldier participated in a long series of inglorious wars. It also points out the complex political and administrative problems the U.S. faced in governing the Philippines.

Both the general reader and the military specialist should find this study entertaining and informative.

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**ETHNIC SOLDIERS.** By Cynthia H. Enloe (University of Georgia Press, 1980. 276 Pages). Reviewed by Major John C. Spence III, United States Army Reserve.

This book focuses attention on a much neglected and uncommon topic — the relationship between military organizations and ethnic groups.

The author shows that from ancient Rome to modern times ethnic groups have played important roles in the armies and navies of both developing as well as advanced industrial societies. It is certain that how a government raises its armed forces, and which groups will make up those forces, are important matters for the national security planner to take into consideration.

The effective use of manpower has always been an important factor in the war-making power of nations. This book offers significant insights into the matter of multi-ethnicity in contemporary society. Today, not only are developing societies in Africa and Asia experiencing ethnic, if not tribal, stresses, the more advanced nations are also experiencing severe internal stresses as witnessed by Canada.

In the America of the 1980s, at least two trends are foreseeable. First, the U.S. will need to draw on a larger manpower pool in order to meet its military personnel needs. Second, the U.S. will continue to be a multi-ethnic society.

This book can give the military specialist insight into how ethnicity must be regarded as a factor in manpower utilization.

**INFANTRY REGIMENTS OF THE U.S. ARMY.** By James A. Sawicki (Wyvern Publications, PO Box 188, Dumfries, Virginia 22026. 1981. 682 Pages. \$29.95).

Although this volume is similar to the Army's official lineage publications, there is one important difference: this one is far more complete, containing as it does the history, heraldry, and honors of all of the 481 U.S. Infantry regiments that have been listed on the Army's rolls since World War I.

James Sawicki, who served as an Infantry officer during World War II and the Korean War, has dug here, there, and just about everywhere for his material. (He also produced the two-volume set of books on the Army's Field Artillery battalions that we noted in our September-October 1981 issue.) He admits there may be differences between his listings and certain official listings, but he feels his is more accurate than any other. Too, his various appendices and his history of the infantry regiment add even more to his book's importance.

This is an outstanding personal effort, one that every student of the U.S. Infantry will want to have in his personal library.

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**THE CROSSING OF THE SUEZ.** By Lieutenant General Saad El Shazly (American Mideast Research, 1980. 333 Pages. \$16.00).

**ON THE BANKS OF THE SUEZ.** By Avraham (Bren) Adan (Presidio Press, 1980. 479 Pages. \$16.95).

These two books rank with the most important ones that have as yet been published on the 1973 Arab-Israeli War although their contents are restricted almost solely to the events on the Suez Canal front.

General Shazly was the Chief of Staff of the Egyptian Armed Forces during the two years preceding the war and during the war itself. Bren Adan commanded an Israeli armored division. Because of the different levels these two men occupied, their views of the war differed considerably. After setting the stage for the

Egyptian attack, for example, General Shazly confines his narrative almost solely to the political problems he encountered with his President and his Defense Minister. In fact, because of those problems, he was relieved of his position in December 1973.

Bren Adan, on the other hand, observed the war at first hand and his account of the battle actions of his divisions make most interesting reading. He, too, on occasion, delves into some of the high level problems he encountered during and immediately after the war, but his narrative is not the same kind as General Shazly's.

Both men hold strong opinions about the way their governments conducted the war and about certain of the war's leading personalities. Whether you agree with them or not, you don't want to pass these volumes by.

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**A GENIUS FOR WAR: THE GERMAN ARMY AND GENERAL STAFF, 1807-1945.** By Colonel T. N. Dupuy (Prentice Hall, 1977. 362 Pages. \$16.50). Reviewed by William Brooks.

The author's thesis is a simple one: "the Germans, in both world wars, were better soldiers than Allied soldiers, and the reason for this was the result of an Army and General Staff system which, by its very design and professionalism, was able to institutionalize excellence."

Throughout this book, therefore, the author seeks to show by examining various historical events why the German General Staff was responsible for German military excellence.

This book is not for the novice. Anyone who plans to read it must have a fairly solid background in contemporary European military or political history. For the serious student, on the other hand, the book is a pleasure to read.

In an epilogue, the author lists his reasons for believing that his book deserves serious study by U.S. military leaders. Support for his contention comes from the fact that the

Soviets have been studying and borrowing from the German example since the 1950s.

Well written, well documented, and certainly convincing, I believe the author's narrative proves his thesis. At the same time, he has given us an enjoyable book as well as one that deserves our future study.

During the past year we have received a large number of books that we think you will find both interesting and useful. And because we cannot mention in this issue all of the books we would like to, we shall continue in this same vein in our January-February 1982 issue. For your convenience, we have grouped the books by either subject area or by era.

Reference books are always popular items with the military professional, and here are some truly fine ones: **THE SOLDIERS: AN ANATOMY OF THE BRITISH ARMY**, by Henry Stanhope (Hamish Hamilton, 1979. 372 Pages. \$28.00); **HARBOTTLE'S DICTIONARY OF BATTLES, THIRD EDITION**, revised by George Bruce (Van Nostrand Reinhold, 1981. 303 Pages. \$7.95, Paperbound); **RESOURCE GUIDE FOR THE WAR OF 1812**, compiled by John C. Fredriksen (available from the compiler, 69 Flamingo Drive, Warwick, Rhode Island 02886. 1979. 156 Pages. \$11.50, Paperbound); **A GUIDE TO THE SOURCES OF UNITED STATES MILITARY HISTORY: SUPPLEMENT I**, edited by Robin Higham and Donald J. Mrozek (Shoe String Press, 1981. 300 Pages. \$37.50); **THE MEXICAN-AMERICAN WAR: AN ANNOTATED BIBLIOGRAPHY**, compiled and edited by Norman E. Tutorow (Greenwood Press, 1981. 427 Pages. \$37.95); **WORLD WAR II ALMANAC, 1931-1945: A POLITICAL AND MILITARY RECORD**, by Robert Goralski (Putnam's, 1981. 486 Pages. \$17.95); and **THE WORLD ALMANAC BOOK OF WORLD WAR II**, edited by Brigadier Peter Young (Prentice-Hall, 1981. 514 Pages. \$16.95).

Weapons, uniforms, and military memorabilia in general are also subjects that military professionals like to pursue. In those fields we recommend the following: **AMERICAN MILITARY EQUIPAGE, 1851-1872**, by Frederick P. Todd. Originally published in three volumes by The Company of Military Historians (Scribner's, 1981. 602 Pages. \$35.00); **WEAPONS: AN INTERNATIONAL ENCYCLOPEDIA FROM 5,000 B.C. to 2,000 A.D.**, by The Diagram Group (St. Martin's Press, 1980. 320 Pages. \$25.00); **ATLAS OF MILITARY STRATEGY**, by David Chandler (The Free Press, 1980. 209 Pages. \$29.95); **THE ARMED FORCES OF WORLD WAR II: UNIFORMS, INSIGNIA, AND ORGANIZATION**, by Andrew Mollo (Crown, 1981. 312 Pages. \$30.00); and these four books from the Sterling Publishing Company: **WORLD ARMY UNIFORMS SINCE 1939**, by Andrew Mollo and Digby Smith. Two books in one (1981. 348 Pages. \$24.95); **UNIFORMS OF THE FRENCH REVOLUTIONARY WARS, 1789-1802**, by Philip Haythornwaite (1981. 147 Pages. \$19.95); **UNIFORMS OF THE FRENCH FOREIGN LEGION, 1831-1981**, by Martin Windrow (1981. 159 Pages. \$19.95); and **ACES AND AIRCRAFT OF WORLD WAR I**, by Christopher Campbell (1981. 144 Pages. \$24.95).

The World War I years have also been the subject of several other good studies: **TRENCH WARFARE, 1914-1918: THE LIVE AND LET LIVE SYSTEM**, by Tony Ashworth (Holmes and Meier, 1980. 266 Pages. \$43.50); **NO MAN'S LAND: COMBAT AND IDENTITY IN WORLD WAR I**, by Eric J. Leed (Cambridge University Press, 1979. 257 Pages); and **THE ROAD TO PASSCHENDAELE: THE FLANDERS OFFENSIVE OF 1917, A STUDY IN INEVITABILITY**, by John Terraine (Shoe String Press, 1977. 365 Pages. \$27.50).

Students of earlier historical events will certainly not want to miss the new translated edition of one of

the real military classics, **JULIUS CAESAR'S THE BATTLE FOR GAUL**. The new translation has been done by Anne and Peter Wiseman (David R. Godine, Publisher, 1980. 208 Pages. \$15.95). Then there are **THE BATTLE FOR THE WEST: THERMOPYLAE**, by Ernle Bradford (McGraw-Hill, 1980. 255 Pages. \$12.95); **THIRTY YEARS' WAR**, by Herbert Langer (Hippocrene Books, 1980. 280 Pages. \$35.00); and **HISTORY OF THE ART OF WAR WITHIN THE FRAMEWORK OF POLITICAL HISTORY: THE GERMANS**, by Hans Delbruck. Translated from the German by Walter J. Renfroe, Jr. (Greenwood Press, 1980. 505 Pages. \$39.95).

A number of so-called "elite" military units have been the subject of recent books. They are: **INSIDE THE SAS**, by Tony Geraghty (The Battery Press, 1981. 249 Pages. \$17.95); **SAS: OPERATION OMAN**, by Colonel Tony Jeapes (London: William Kimber and Company, 1980. 247 Pages); and **THE RAIDERS: THE ELITE STRIKE FORCES THAT ALTERED THE COURSE OF WAR AND HISTORY**, by Richard Garrett (Van Nostrand Reinhold, 1980. 224 Pages. \$18.95).

Finally for this issue, we call your attention to two new monographs in the Leavenworth Papers series produced by the Combat Studies Institute of the Army's Command and General Staff College. The first is **NOMONHAN: JAPANESE-SOVIET TACTICAL COMBAT, 1939**, by Edward J. Drea; the second is **"NOT WAR BUT LIKE WAR": THE AMERICAN INTERVENTION IN LEBANON**, by Roger J. Spiller. Additional information on this series can be obtained from the Director of the Institute. We recommend the series to all of our readers.

Here are a number of our longer reviews:

#### RECENT AND RECOMMENDED

**THE TERROR NETWORK. THE SECRET WAR OF INTERNATIONAL TERRORISM.** By Claire Sterling. Reader's Digest Press and Holt, Rinehart and Winston, 1981. 357 Pages. \$13.95.



# INFANTRY LETTERS



## ANTITANK GRENADE

Dear Sir,

The partial rebuttal, in an Editor's Note, of Captain Larry Altersitz' article, "Antitank Grenade," (INFANTRY, November-December 1980, pages 14 and 15) prompted Major Marshall Helena to write a letter (INFANTRY, May-June 1981, pages 56 and 57) urging a more constructive treatment of the subject.

This directorate would like to provide that constructive treatment and inform INFANTRY's readers of an antitank grenade development program. The spokesman for the Weapons, Gunnery, and Maintenance Department who responded in the editor's note was not aware of this program.

U.S. antiarmor defenses traditionally have been based on one variation or another of the HAW-MAW-LAW concept. This concept proposes the engagement of armored formations first by the heavy antitank weapons (HAW), currently the TOW, then by the medium antitank weapon (MAW), currently the Dragon, and finally by the light antitank weapons, the M72A2 LAW/Viper.

These engagements are, of course, nicely echeloned by the range and the relative killing power of the weapons, with the HAW engagements beginning at about 3,000 meters and working inward. This predicated defense is supposed to kill armor before it penetrates our forward lines, leaving that armor's accompanying infantry vulnerable to our anti-personnel weapons. The flaw in this theory is that, for a variety of reasons, the odds are very good that a percentage of the hostile armor vehicles will penetrate our forward lines, and we may find a number of them in and behind our

division rear areas. Unfortunately, our current HAW/MAW/LAW weapons, because of their low rates of fire, backblasts, and arming distances, are not meant to kill armor at close-in combat ranges. A prudent look at Threat tactics, doctrine, and organization, therefore, dictated that we develop a light, easily trained, inexpensive, and above all, effective weapon to kill hostile armor at close ranges.

Such a weapon is now being developed. The Department of the Army has approved funding for a High Explosive Antiarmor Grenade (HAG), and ARRADCOM engineers are now reverse engineering the East German AZ 58-K-100 HEAT hand grenade for use by the United States' forces. Weighing about 31 ounces, the grenade has a stick handle reminiscent of the World War II "potato masher" grenades; it is stabilized in flight by a spring-loaded drogue chute that trails behind it; and it is detonated on impact by an inertia sensing fuze. It has a shaped charge slightly larger than three inches in diameter and is intended for use against the tops and sides of armored vehicles. Standoff is provided by a built-in ogive on the nose of the grenade. With an average range of 14 to 20 meters, depending on the strength and skill of the user, this weapon is definitely suited for close-in combat against armored vehicles.

Current development actions focus on the HAG's fuzing, which is being closely scrutinized to lessen the chances of accidental detonation. Unlike standard anti-personnel grenades, the HAG does not use a time fuze but relies on the stopping of its forward motion (inertia) to detonate it.

When it is fielded, the HAG will

give the ground soldier the ability to kill armored vehicles in a close-in fight. Additionally, its low cost, simple training requirements, and small size ensure that it can be issued in large numbers not only to our front line combat troops but also to our rear area troops to aid them in their security mission.

While not quite on the same level as Samuel Colt's "great equalizer," the HAG can help tip the odds back toward the infantryman in a man-versus-tank confrontation.

Captain Altersitz should be congratulated for his forward thinking.

R. M. OTT  
LTC, Infantry  
Directorate of Combat Developments  
U.S. Army Infantry School  
Fort Benning, Georgia

## HANDGUN CHANGE

Dear Sir,

Captain Myron H. Murley, in his letter on the .45 versus 9mm controversy (INFANTRY, July-August 1981, page 58), made some interesting statements that I think need to be examined more closely. While the .45 ACP and the Parabellum have been used by military and police organizations for over 50 years, they are hardly obsolete. The fact is that shooters have been experimenting with them to get more positive effects. This is fine for civilian marksmen, but I think we are forgetting many factors that will make the 9mm pistol far better for the U.S. armed forces.

All of the improvements and modifications made to the basic M1911A1 pistol have increased its functioning, accuracy, and versatility. This is

great for existing .45s on the civilian market, but those in our arms rooms have had many rounds fired through them and have seen all forms of wear and usage. No one can doubt that the .45 is an effective round, but it is also a more expensive round to manufacture in terms of the cost of the components.

The 9mm is lighter and more rounds can be carried to the field. This means that, because more weapons have been chambered in 9mm than in .45, an extra burden to the logistics personnel could be eliminated should we be forced into armed conflict.

The adoption of the 7.62mm NATO round was intended to simplify wartime supply problems between us and our allies. By incorporating the 9mm we will be able to tap present allied stockpiles in Europe until our own system of supply catches up. Hopefully, in the future the 5.56mm will become the new NATO round, and S4s will not have to pull their hair out if there is a need to resupply ammunition in a pinch—as long as we are near a friendly ammunition dump.

As to the value of an ambidextrous safety and of a double-action pistol, which Captain Murley says is “debatable,” I totally disagree. First, we have a population of, conservatively, 10 to 15 percent lefties. Many of our weapons can be used by either left- or righthanded shooters, but after over 10 years with the U.S. Army I still haven’t found the NSN for a left-side holster. Weak-hand shooting is intended to be only a survival skill in cases where the strong arm is incapacitated.

With the new designs in safeties, such as the types that block or disengage firing pins, there is no longer a need to carry a pistol “cocked and locked” as some people do. The new double action pistols are designed to be much less prone to accidental firing. No firearm is totally “goof proof,” but the designers have been able to build more secure features into the new weapons for our less adept or less trained shooters to use.

Let’s be honest about the

M1911A1. It was a great milestone in the history of the handgun, but it is time now to retire the series in favor of a new firearm. We are planning and training for the future, and we should expect our sidearms to keep up with the state of the art in design and versatility. We should also expect our weapons to be more compatible with those of our allies. The 9mm pistol may help to insure battlefield survival, reduce our costs, and put our troops on a par with our allies.

N. DAVID LEIFER  
CPT, MI  
Miami, Florida

### MORTARS AND MET MESSAGES

Dear Sir,

I have just received, somewhat belatedly, a copy of an article about the use of artillery MET messages in mortar gunnery (“Keep Them Firing,” *INFANTRY*, January-February 1980, page 45, by SFC S. M. Edwards). I have little doubt that the author is indeed a well-qualified mortarman, but he lacks an understanding of the use and application of the artillery MET.

The author’s main point is that the MET message is not applicable to the “shoot and move” philosophy of company mortars. Also, the statement concerning not firing because of having to wait for the MET message is completely ludicrous. If that were the case, there would not be a field artillery battery in the world that could provide effective continuous support of the maneuver forces. A MET message’s concurrent and subsequent calculations are not an end in themselves but a means to an end.

The object of the FDC, whether it be for a 60mm mortar or an 8-inch howitzer, is to provide the most accurate and the fastest fires possible. But speed and accuracy are antithetical and can only be traded against each other. This does not imply that METs should not be done because they cannot be used. A concurrent MET should be done whenever possible,

survey or not, so that if you do get a subsequent message, accuracy can be increased. Waiting the “four to six hours” for the next message is generally only two to four hours.

Sergeant Edwards also states that registrations must be conducted every four to six hours if MET data is not received. This can happen only if all the following conditions are met: Ammunition is plentiful; a trained forward observer is available; terrain permits observation of a registration point; and enemy countermortar activities are absent.

If these conditions are not met, the sound tactician would not order a registration. But neither can he stop firing. (Sergeant Edwards implies that the mortar then becomes a worthless piece of metal.) Firing must be continued using the best data available. Whether that data is “cold stick,” the platoon leader’s judgment, or the old GFT setting is a matter of decision at that point.

The point is, though, that MET data should be incorporated into all indirect fire systems and used at all times. We cannot be lax in providing the most accurate data possible simply because we may not be able to use it later.

A final point: the planning radius of a MET is 20 *kilometers*, not 20 miles.

THOMAS H. JONES JR.  
CPT, FA  
Fort Carson, Colorado

### MIRACLE BOOT

Dear Sir,

I read with great interest the letter from Staff Sergeant Potter in your July-August 1981 issue (page 57) concerning the new combat boot. I would like to add some insights on footwear that I have picked up in the Army, and while working in the Far East and much of the rest of the world in all climates.

The miracle boot is not a boot at all — it is a sandal. For several years I led Boy Scout hiking tours across Europe and noticed that the Euro-



pean Scouts got out of their hiking boots whenever they were not needed and put on their sandals.

I first adopted this technique for a very good reason — blisters. If a hiker develops blisters while wearing his boots he can take the boots off and continue to march in his sandals, provided the sandals are of good quality. This will allow his feet to get air and dry out, and the blisters will heal while the march goes on. This also helps reduce the incidence of athlete's foot. Women rarely buy products for foot fungus, and I believe this is because they frequently wear sandals.

Scouts can jog very well for short distances in sandals, even carrying their rucksacks. They can wear sandals even in very cold weather, provided they have on wool socks. I have never found wet, nearly frozen boots superior to sandals and wool socks.

In the Far East, properly constructed sandals hold up very well, even under water. I think we know that irregular infantry has done very well with them.

I am suggesting that the Army consider this aspect of "ground pounder" footwear and have the infantry get into sandals whenever possible.

GEORGE WILLIAMS  
Greenville, North Carolina

#### FORMER MORTAR INSTRUCTORS

Dear Sir,

The Mortar Division of the Weapons, Gunnery, and Maintenance Department of the U.S. Army Infantry School at Fort Benning, Georgia, is looking for names, addresses, phone numbers, photographs or any other information that might help them find past NCO instructors of the Mortar Division, or Mortar Committee, who have since gone on to become sergeants major.

The Mortar Division plans to post the information in a special section of Eiler Hall, the Mortar Division's

home at Fort Benning.

In this way the Mortar Division hopes to attest to the quality of its past and present NCO instructors and at the same time to honor those who went on to become sergeants major.

If any reader knows someone who was an instructor at the Mortar Division and who was, or presently is, a sergeant major, we invite him to call 404/544-2513, or mail the information to SFC E. Williams, SGM Project, Mortar Division (WGMD), Fort Benning, GA 31905. We would like to have the individual's name, address, and telephone number, and an 8 X 10 black and white military photograph of him suitable for framing.

THOMAS H. WHITLEY  
MAJ, Infantry

#### ARTILLERY BRIGADE

Dear Sir,

The article, "Infantry and Armor in Division 86," by Lieutenant Colonel Rosenberg and Robert O'Neil in the May-June 1981 issue of *INFANTRY* (page 19) was very informative and interesting. I think, however, that it was perhaps too cursory with regard to some of the specific changes in Division 86. Most obvious is the omission of any comment concerning the appearance of the Field Artillery Brigade instead of the Division Artillery in Figure 1, page 20.

From the aspects of fire support and firing capabilities, many important considerations were evaluated before the decision was made to incorporate the FA Brigade. My experience a few years ago when writing about the FA Brigade was that very few people knew or understood what the brigade was or was not capable of doing. I fear the same thing is true today, and I can only hope that the Field Artillery School at Fort Sill has sent enough disciples out into the world to preach the virtues of the FA Brigade.

Your readers, the present and future commanders, S3s, and XO of

the Army must understand the differences and appreciate the limitations of the new organization. The new dimensions of the term "fire support" in the air-land battle have to be explained more fully for the entire Army community if any benefit is to be derived from the changes. Perhaps the authors could combine with the tactics and doctrine people at the Field Artillery School to write another article to elaborate further on the fire support in Division 86.

JOHN D. SPENGLER  
MAJ, FA  
Terre Haute, Indiana

#### WEAPONS AND TOYS

Dear Sir,

The Army seems to have become infested with technocrats who are more concerned with developing increasingly sophisticated new equipment than with improving the fighting ability of those who will come face to face with the enemy in the next war. Many examples from personal experience come readily to mind.

As a tank crewman in Vietnam, I served with units equipped with the M551 Sheridan and the M48A3. The 48 was relatively simple and rugged, and with a good loader it could fire 17 90mm rounds in 60 seconds. The Sheridan had complex electronics that frequently failed, and it fired only two rounds per minute.

More recently, I joined a tank platoon in the National Guard that was originally equipped with M48A1s. Obsolete the tanks were, but we spent our time practicing tactical movement and shooting, and we learned what our tanks were capable of doing. Later we were reequipped with the M48A5 — and then the toys began to appear: an indoor laser range complete with plastic scale models of Soviet tanks and an outdoor range for use with a .22 sub-caliber device. So now instead of the thunder of a 105 being fired, there is the barely audible "plink" of a .22 going downrange, which might be

great if our next enemy turns out to be an army of Lilliputians.

Now the Army is fielding a newer, even more sophisticated (and expensive) tank that is intended to fire bigger (120mm) and more costly ammunition. Since the Army is unwilling, or unable, to allocate enough ammunition for its tank crews to achieve and maintain proficiency with the 105mm, how can it expect to provide enough of the more expensive rounds?

In 1978, I assumed leadership of an antiarmor platoon that was equipped with 106mm recoilless rifles. We fired many HEAT rounds at hard targets, and got used to operating with the weapon and learned its idiosyncracies. A year later the 106s were replaced by TOWs and the inevitable toys that went with them. Whereas before we could shoot live rounds at real targets, now we were restricted, even moreso than with the tanks, to simulated target practice. Not one gunner in that platoon ever got to fire a live TOW missile, and probably never will, barring a war.

Now, as commander of an infantry company, I see some of the same symptoms. The IFV is replacing the M113. The old 113 works and works well; but does the IFV? And we are expected to knock out tanks with the

LAW, yet we are not supplied with any LAWs to fire in practice. If we're lucky, we may be able to fire a few of the subcaliber rockets from a previously expended LAW launcher. As for hand grenades and claymores, we *might* get to see some inert examples.

Now they want to replace the M1911A1 pistol. Setting aside the fact that the .45 has more stopping power than the 9mm, requiring double action for the new pistol effectively negates (for the first shot, at least) the supposed increase in hit probability because a 9mm weapon does not recoil as much as a .45. If the only compelling reason to switch to the 9mm is for logistical compatibility with our allies, it would make more sense to purchase new slides and barrels in 9mm chambering and convert the M1911s to 9mm. This could be done for less than half the cost of new pistols and would allow us to use most of the spare parts presently in the system. And the money we would save could be used to buy a lot of 9mm ammunition.

Finally, I hear talk that the M16 rifle has a less than effective range for combat in Europe or desert areas. Interesting, isn't it, that a rifle with an effective range of 400 meters should need to be replaced by one with an effective range of 800 to 1,000 meters

when the average rifleman is lucky if he can hit a target that is less than 300 meters away. (INFANTRY, "Troubleshooting Rifle Marksman-ship," July-August 1981, page 28.)

New equipment is nice, provided it works, but I think we would be better prepared if we spent that money on fuel and ammunition that would let us attain proficiency with the weapons we already have instead of on new ones that we can't afford to train with.

HAROLD L. SPURGEON  
1LT, Infantry  
Santee, California

#### TRANSLATION PROBLEM

Dear Sir,

Reference the article "Tank Killers: Infantry Resurgent" (INFANTRY, July-August 1981, page 9), author Robert C. Smith claims the German word *Panzerfaust* translates as "armor-devil." (Even Goethe's Faust is not the Devil but has sold his soul to the Devil.) The term *Panzerfaust* actually means "mailed fist," as that of a knight in armor.

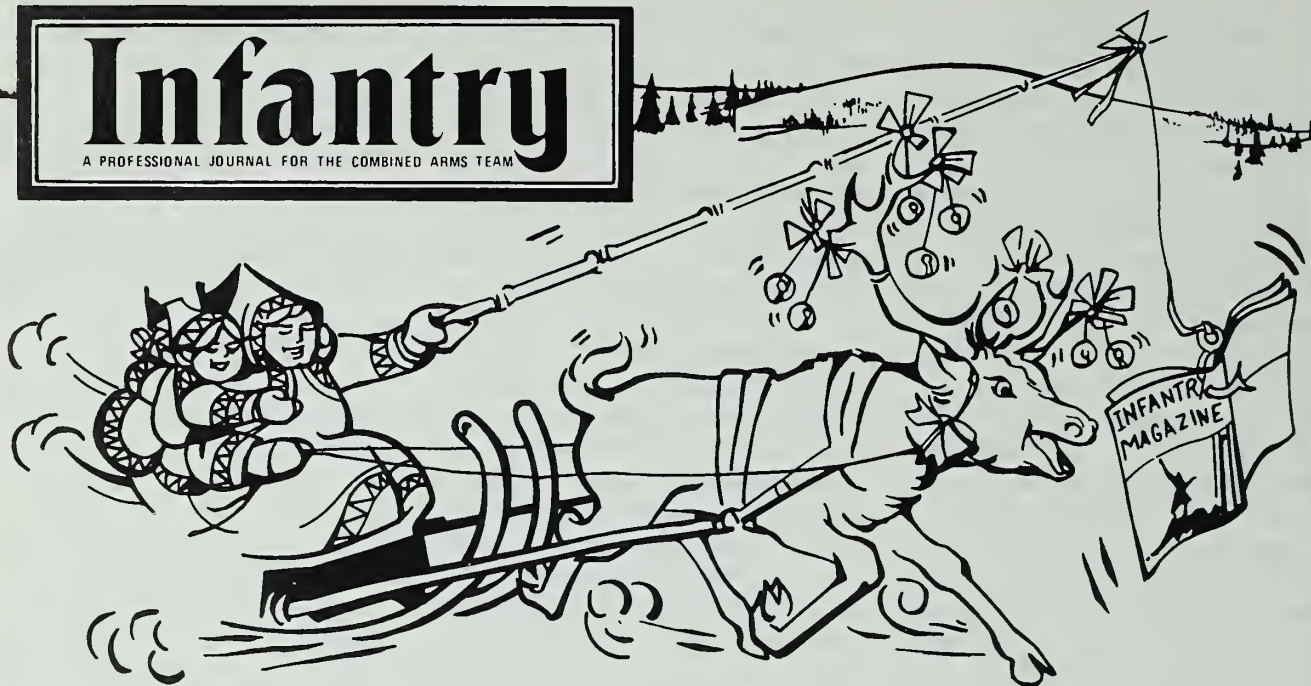
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# From The Editor

## THE 3 Rs: READIN', RITIN', REPUTATION

All too often professional development is a subject many officers talk about but take few steps to put into action. The infantry officer cannot rely solely upon the service school or staff college to provide the professional development and expertise he needs to maintain his proficiency in the combat arms. There is a very real need for every officer to read and write within his profession. Traditionally, soldiers have cherished their image as men of action and smugly looked down their noses at the intellectuals who are left to write the history and postwar critiques of the military system.

Reading professional journals broadens your knowledge, generates ideas, and improves your credibility by expanding the experience base from which you draw judgment and opinion and ultimately make recommendations. In like manner, writing a professional article is good practice for thorough staff work, which is a must for the officer who moves from the "green tab" to the staff officer role. In both cases, your reputation is on the line, and it is evaluated by your ability to express yourself concisely and accurately. Research is a must, and few bosses will accept the "quick fix" and "seat of the pants" solution to a problem.

INFANTRY, your professional journal, is an excellent companion. It provides the latest training techniques from all over the world, book reviews to keep you abreast of current subject material, and a forum through which you can exchange ideas with other professionals.

Break the tunnel vision; there's more to being an infantryman than charging the hill! READ it here, and WRITE down your ideas for others to share. Your REPUTATION is worth the time and discipline required.

DRK

## OUTSIDE BACK COVER:

Half-track, Fort Belvoir, Virginia, 1942, by A. Brockie Stevenson. (Courtesy, U.S. Army Center of Military History)

















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